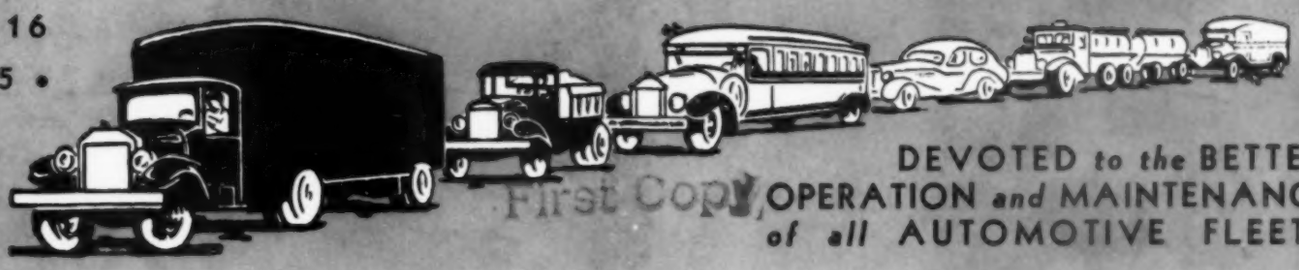
First Copy

FLEET OWNER

PUBLIC LIBR
MAY 9 - 1936
DETROIT

VOLUME 16
NUMBER 5 •

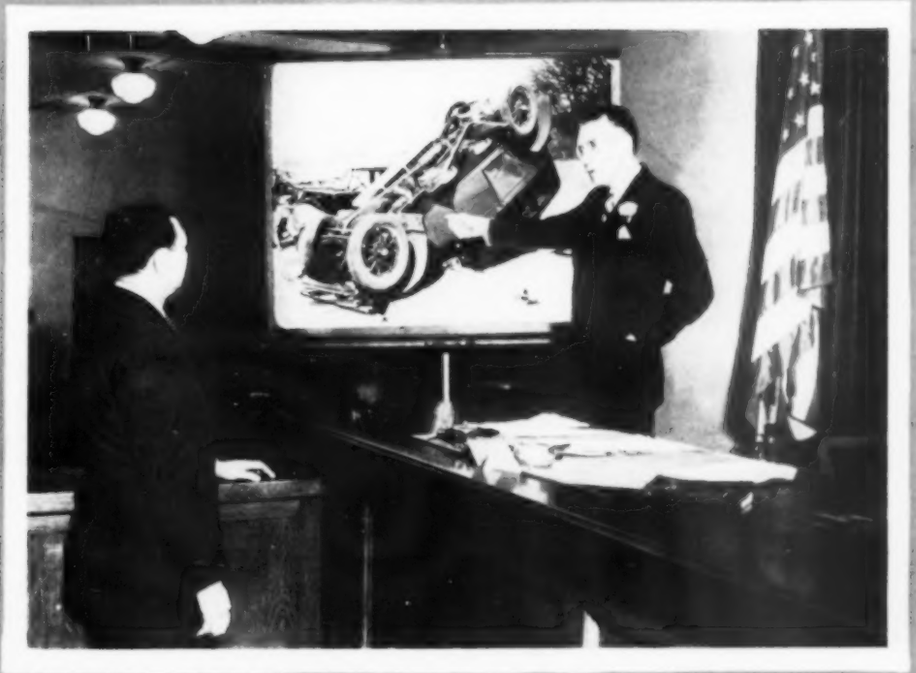


First Copy

DEVOTED *to the* BETTER OPERATION *and* MAINTENANCE *of all* AUTOMOTIVE FLEETS

IN THIS ISSUE:

CUTTING COSTS IN A LAUNDRY FLEET . . . . . Page 18
MOTOR TESTER PROVES "MOST VALUABLE" . . . . Page 22
SAFETY IS FEATURED ON TANK TRUCKS . . . . . Page 24
A TRUCK MANUFACTURER TESTS DIESELS . . . . . Page 26
PREVENTIVE MAINTENANCE—HOW IT WORKS . . . . Page 30
SLUDGING—ITS CAUSE AND PREVENTION . . . . . Page 36



MAY
1936

BOND BAKERS GET LASTING "FRESHNESS"

in their Truck Finishes!

GENERAL BAKING COMPANY take pride in the guaranteed freshness of Bond Bread. And their handsome trucks are daily symbols of their famous slogan "Guaranteed Fresh." They are finished with Du Pont Automotive DULUX.

Here is *another* of the great number of fleet operators who realize that DULUX makes every truck a brilliant traveling advertisement of their business—and at the same time reduces overhead and refinishing costs to the lowest possible point.

When you finish your trucks with Automotive DULUX you save money. Here's why: DULUX keeps its sparkle and lustre far longer, under good weather conditions or bad. It has extraordinary durability . . . stands up under the daily wear and tear of hard use on the road. Its protective film is elastic. It is resistant to chipping, cracking and flaking, sharp blows, oil and gasoline stains. Its hard, smooth finish is easy to wash and polish. *DULUX keeps your trucks out of the refinishing shop for a longer time.*

You can finish your trucks with Automotive DULUX yourself. It can be applied either with brush or spray. Or if you don't have a paint shop, an Authorized DUCO-DULUX Refinisher can do it for you.

At your request, a du Pont representative will call to give you full information about Automotive DULUX. Write to E. I. du Pont de Nemours & Co., Inc., Finishes Division, Refinish Sales, Wilmington, Delaware.

DU PONT

REG. U. S. PAT. OFF.

AUTOMOTIVE

DULUX

REG. U. S. PAT. OFF.

DU PONT ON THE AIR—*Listen to "The Cavalcade of America" every Wednesday, 8 p. m., E. D. S. T., over Columbia Broadcasting System*

HAULS 600 TONS DAILY

Truck being loaded at mine of Industrial Coal and Iron Co. in Southern Ohio

COAL MINE TRUCK CARRIES 31-TON LOADS • • • NEVER TOUCHES PAVEMENT—TIRES TAKE IT

Six hundred tons of coal hauled is just a day's work for one of these big trucks. Five such semi-trailer units are constantly on the go. They're loaded in a hurry by big, powerful electric shovels. Then, after leaving the stripping operation, they drive through mud and water—over stones. They never see a paved road. And the gross load is over 31 tons. What a job for tires!

Tires Triple Protected

Yet Triple Protected Silvertowns take the trucks through with never a let-down. Not one sidewall break is chalked up against them in over a year!

It's that kind of service that leads truckers to choose Triple Protected Silvertowns for their toughest hauling jobs. And if they stand up under the brutal, grinding service of a strip mine, they'll save money on your trucks, too.

Here's the secret of Goodrich performance. Every Silvertown is built with a new invention in the sidewall. This development—Triple Protection—provides a 3-way safeguard against sidewall breaks—the cause of 80% of premature failures! When you get this protection, you've gone a long way toward getting tire costs down to bed rock. Don't take chances. Insist on Triple Protection when you buy. It costs you *nothing extra.*

HOW TRIPLE PROTECTION WORKS

1 **PLYFLEX**—a *new*, tough, sturdy rubber material with greater resistance to stretch. A layer of Plyflex in the sidewall prevents ply separation—distributes stresses—checks local weakness.

2 **PLY-LOCK**—the new Goodrich way of *locking* the plies about the bead. Anchoring them in place. Positive protection against the short plies tearing loose above the bead.

3 **100% FULL-FLOATING CORD**—Each cord is surrounded by rubber. With ordinary cross-woven fabric, when the cords touch each other, they rub—get hot—break. In Silvertowns, there are no cross cords. No friction.

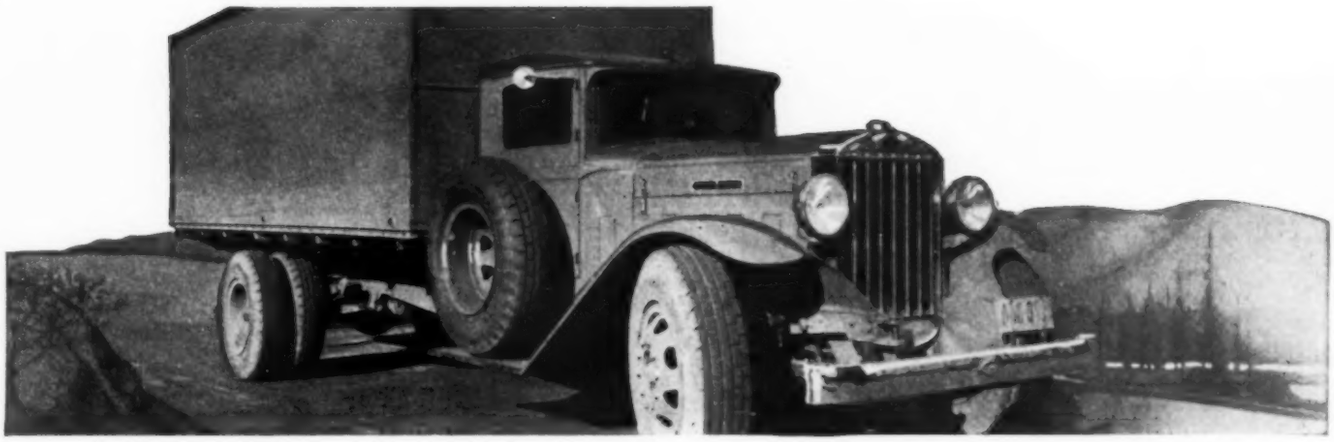
© 1936, The B. F. Goodrich Co., Akron, Ohio.

Goodrich *Triple Protected* **Silvertowns**

SPECIFY THESE NEW SILVERTOWN TIRES FOR TRUCKS AND BUSES

More bus miles are lubricated with Texaco Products than with any other brand.
Three out of four of the 1935 Bus Maintenance Records were made by users of Texaco Products.
NOW...
Stays FULL longer
the "FURFURAL'd FILM" does it!

New TEXACO



A NEW KIND OF OIL

. . . that stops all trucks from being OIL-THIRSTY

When we developed the Furfural Process to make the New Texaco Motor Oil, we had just one thing in mind . . . We wanted to give truck operators a better and *safer* lubricant.

"Furfural" is a new refining material. When oil is treated with Furfural, a stronger film is produced . . . a film that *resists heat in hot cylinders*. It is called the "Furfural'd Film."

A "Furfural'd Film" is *all lubricant*. All tar and gum forming elements . . . and other non-lubricating materials . . . have been removed. There are no waste products to gum and stick piston rings . . . or to form hard carbon . . . sludge . . .

This oil lasts longer because the oil film provides a greater—more complete—protection for the moving parts of the engine.

It lubricates so completely that wear on cylinder walls, piston rings and bearings is almost eliminated. Greater piston seal is assured. Hence, more complete combustion . . . higher fuel economy.

A Texaco representative will be glad to provide practical engineering service to prove the economies you can get with the New Texaco Motor Oil.

THE TEXAS COMPANY
135 East 42nd Street • New York City

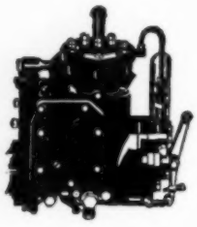
Nation-wide distribution facilities assure prompt delivery.

MOTOR OIL

TEXACO

Read the record

CUMMINS-DIESEL *powers 5200 gallon tank-truck*



"No Diesel can be any better than its Fuel Distribution System" . . .

● **To secure the maximum pay-load and still be well within the State regulations for weight, Mack engineers gave special care to the construction of this 5200-gallon, aluminum tank-truck . . . and because its exclusive fuel distribution system assures dependable, economical power, they chose a Cummins-Diesel Engine.**

This truck makes daily trips to points in the Catskills taking the stiff grades easily and maintaining the outstanding operating economy for which all Cummins-Diesel powered trucks are noted.

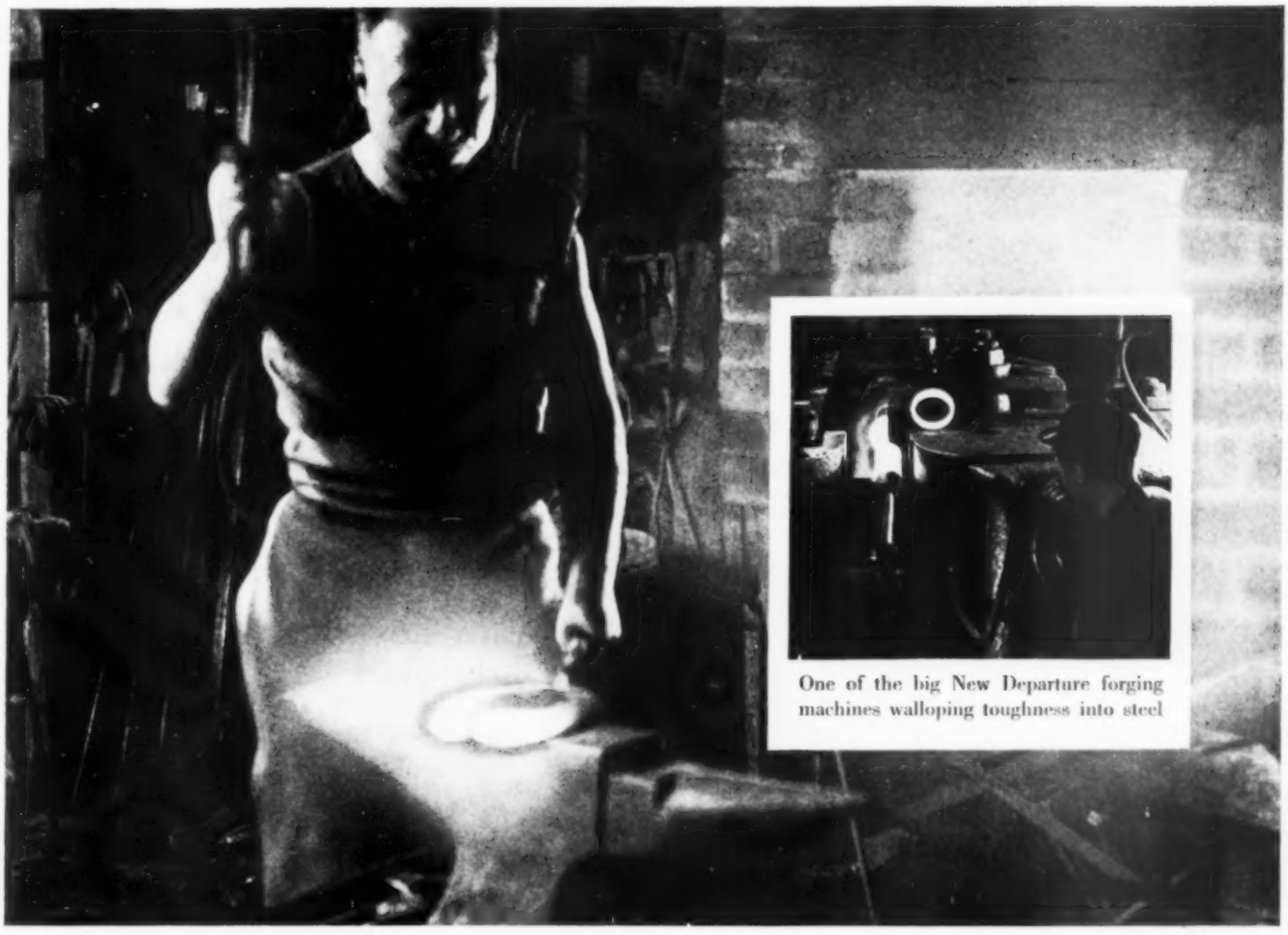
Cummins-Diesel dependability, low maintenance, long life and consistent fuel economy point the way to extra profits in every pay-load mile for the fleet owner. Cummins Engine Company, 1101 Wilson Street, Columbus, Indiana.

CUMMINS-DIESELS

AUTOMOTIVE · INDUSTRIAL AND MARINE

You'll find them tougher

...because we forge them



One of the big New Department forging machines walloping toughness into steel

From the days of the first blacksmith, forging has been the one process that makes stronger, tougher steel.

New Departure is the *forged steel* bearing. Forging squeezes a whale of a lot of steel into a small space.

New Departure's toughness makes them last longer, makes gears and shafts stay put! They are approved equipment on 140 models of trucks, busses and taxicabs. Used by millions for replacement jobs.

Get all your replacement bearings from a New Departure distributor. He knows bearings. He has what you want. He's just around the corner.

UNITED SERVICE MOTORS
A NATIONAL ORGANIZATION

•

GET WHAT YOU WANT WHEN YOU WANT IT!

There are 1466 New Departure Bearing distributors in the United States. That means you can get the bearing you want, *at once!*

NEW DEPARTURE

THE *FORGED STEEL* BEARING

IMPORTANT FACTS

Come from Actual Users

Special Information for Maintenance Superintendents

Sovac Oils are cutting costs because Socony-Vacuum's Clearosol Process removes gum and carbon-forming elements . . . makes an oil that will not cause gummed valves and rings. These oils have an unusually flat viscosity curve. They reduce friction drag—save gasoline. They give extra protection at both high and low temperatures—cut maintenance costs.

Sovac Oils are Proving themselves the greatest Heavy Duty Truck Oils Ever Made

SOVAC CUSTOMERS are in the same business you are . . . that's why the things they say about Sovac Oils are important to you. Remember, once they were using other oils, and, frankly, were pretty hard-boiled about changing.

The results shown on the opposite page are being duplicated by thousands of Sovac users. Can similar savings be made on your fleet? We believe they can! And it's easy enough to find out!

Make us prove these statements. We can run a controlled test on part of your operation. It will cost you neither time nor trouble. It will definitely prove how much money Sovac Oil can save for you.

A Socony-Vacuum engineer will cooperate with you. These men have had a lot of experience in applying Sovac Oils to a wide range of operations. Just send us a letter today . . . or call our office listed in your phone book.

SOCONY-VACUUM

STANDARD OIL OF NEW YORK DIVISION • WHITE STAR DIVI-
WADHAMS OIL COMPANY • MAGNOLIA PETROLEUM COMPANY •

ABOUT SOVAC OILS

SOVAC OILS ARE MAKING SAVINGS LIKE THESE ON EVERY TYPE OF OPERATION

60% MORE MILEAGE
RICHER TRANS. CO.
ASH ST.
NASHUA, N. H.

NO CARBON
KLING BROTHERS, INC.
LONG DISTANCE TRUCKING Daily, New Haven to New York

25% LESS OIL
TRUDON & PLATT MOTOR LINES, INC.
Main Office, 16-20 Church Street, BRISTOL, CONN.

20% LESS MAINTENANCE
S. & H. CORPORATION
15 East Genesee Street, Buffalo, N. Y.

AT THE START our laboratory told us Sovac was a great oil. Now our customers are proving it—out on the road—with savings no fleet owner can afford to overlook. These letters were picked at random out of an overburdened file of similar reports from other Sovac Oil users.

OIL CO., INC.

SION · LUBRITE DIVISION · WHITE EAGLE DIVISION
GENERAL PETROLEUM CORPORATION OF CALIFORNIA

SOCONY-VACUUM

OAKITE STEAM-DETERGENT METHOD

walks right into grease and muck-covered truck and tractor parts and all heavy equipment like nobody's business! When it is a question of LOW COST and TIME you will find there is nothing to match this economical method for getting rid of heavy grease and dirt accumulations to prepare a job for repair or repainting.

STEPS UP

Steam Cleaning

SPEED...QUALITY!

If you want the kind of cleaning you never thought possible, write today for details about the Oakite Steam-Detergent method of cleaning and discover the many advantages it can give you. Fleet owners now using this method say it is the best ever! Without obligation on your part let us give you the benefit of our 27 years' successful, practical experience and interesting data on Oakite Steam-Detergent cleaning methods and materials for your type of work.

Branch Offices and Representatives in All Principal Cities of the U. S.

Manufactured only by

Oakite Products, Inc., 52G Thames St., New York, N. Y.

OAKITE

TRADE MARK REG. U. S. PAT. OFF.

SPECIALIZED INDUSTRIAL CLEANING MATERIALS & METHODS

The

FLEET OWNER

Published Monthly in the interests of Automotive Fleet Owners, who maintain their own Repair and Service Shops and devoted to the better Operation and Maintenance of Truck, Trailer, Bus, Passenger Car, Taxicab and all Automotive Fleets.

VOL. 16 New York, May, 1936 No. 5

Table of Contents

Stripping the Thread	Editorials	15
Cutting Costs in a Laundry Fleet	Geo. T. Morgan	18
Motor Tester Is "Most Valuable"	Geo. N. Christenbery	22
Safety Is Featured on Oil Trucks	J. F. Winchester	24
Truck Maker Tests Diesels	B. B. Bachman	26
Preventive Maintenance (Part III)	O. M. Brede	30
Time to Think About Uniforms	H. Clay Fischer	34
Sludge—What Is It?	A. L. Bergquist	36
Analyzing 1935's Accident Figures		38
Let's Lubricate for Safety!		40
News of the Truck Industry		44
Trouble Shooters' Department		46
Mack Announces New Model EH		50
Letters to the Editor		52
Here and There in the Fleet Industry		54
New Stuff for Road and Shop		56
Question-of-the-Month Club		58
New Trade Literature		60
Index to Advertisers		80-81

Published Monthly by

The FERGUSON PUBLISHING COMPANY

90 West Street, New York City

A. L. Conley, Gen. Mgr. and Treas. — Henry Clay Fischer, Editor

ADVERTISING REPRESENTATIVES:

EASTERN TERRITORY — Hal H. Clark, 90 West St., New York; I. E. Hand, 90 West Street, New York — Tel. REctor 2-9179

CLEVELAND and DETROIT — L. W. Perkins, 3260 Elsmere Road, Cleveland, Ohio. Telephone: Longacre 2718

CHICAGO TERRITORY — D. B. Trott, 114 Clyde Avenue, Evanston, Ill. Telephone: Long Beach 2331

WEST COAST TERRITORY — R. H. Deibler, 1406 So. Grand Ave., Los Angeles, Calif. Telephone: Richmond 5274

CIRCULATION SUPERVISOR: J. Hayes Fuller

Subscription: $2.00 Yearly; Single Copies 25c

CCA

(Copyright 1936 by the Ferguson Publishing Company)

FLEET OWNERS ARE SAYING "THAT'S THE TRUCK"

Truck buyers everywhere are placing their stamp of approval on the entire line of improved GMC trucks. Whichever type or size they own, they're saying of it "That's the truck."

And small wonder. There's the exceptional GMC in the 3-ton range at only $895, chassis f. o. b. Pontiac —a value unmatched in its ability to out-perform and out-earn. There are GMCs of greater capacity—likewise values that challenge the field in their respective capacity ranges. There's money-saving dual performance, now available for all GMCs ranging in capacity from 1½ to 6 tons. There's the 1½-2 ton many-feature, quality GMC at the surprisingly low price of $525, chassis f. o. b. Pontiac.

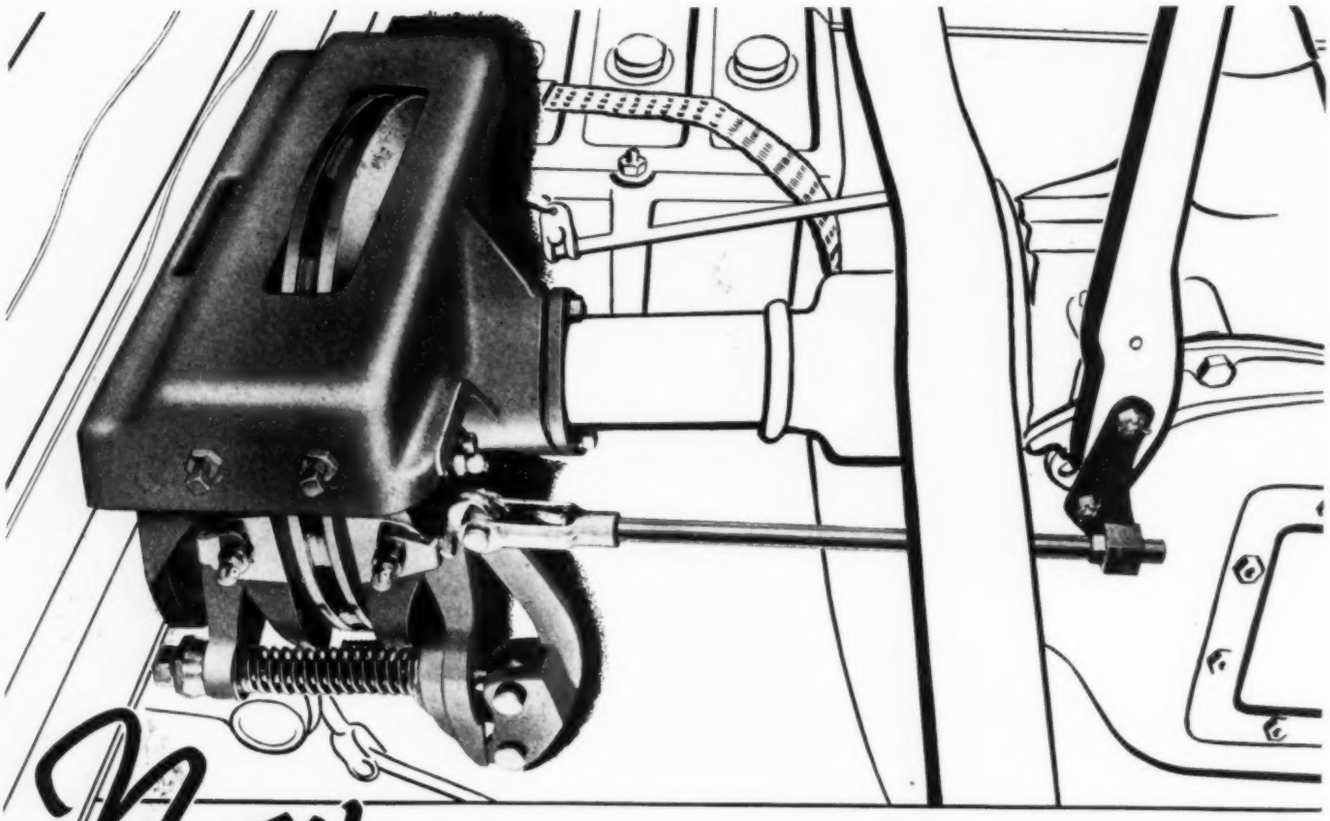
And in the great new GMC line, you will also find scores of refinements such as more powerful engines, improved weight distribution, advanced streamlined appearance, more comfortable all-steel "helmet top" cabs and, more than ever before, the kind of construction that assures "engineered-for-the-job transportation."

½ TO 15 TONS
THE TRUCK OF VALUE

Time Payments available through our own Y. M. A. C. 6% plan

General Motors Trucks and Trailers

GENERAL MOTORS TRUCK COMPANY, PONTIAC, MICHIGAN



Now a TRU·STOP

VENTILATED DISC Emergency Brake

for Chevrolet and Ford V·8 Trucks and Buses

● Here is added safety—added "stop-ability"—for Chevrolet and Ford V-8 Trucks and Buses! • The well-known Tru-Stop Emergency Brake is now available in standard, easily installed and quickly serviced models for both the Chevrolet and Ford V-8 truck chassis. • This brake meets the requirements of the most stringent state laws regarding brakes. It will stop a heavily laden truck smoothly, quietly, quickly and surely. It is an exceptionally safe brake. • Installation is easy. Any mechanic can install it. Can be adjusted or relined by any driver. Available in three sizes.

POWERFUL
Handles capacity load at any speed.

VENTILATED DISC
Self cooling. Does not overheat.

QUICKLY AND EASILY
—adjusted or relined by any driver.

BRAKING PRESSURE
—distributed evenly over the lining surface.

LONG LINING LIFE
—as well as high braking efficiency assured.

NO SELF ENERGIZATION
—brakes respond in direct proportion to the effort exerted on the brake lever.

CHATTER PROOF
—no grabbing—no chattering.

The Tru-Stop Emergency Brake is also available for quick installation in large trucks and buses

AMERICAN CABLE COMPANY, Inc.
Automotive Division, Bridgeport, Conn.
An Associate Company of American Chain Co., Inc.
Manufacturers of the Famous Weed Tire Chains

In Business for Your Safety

Three-quarter view

Stop safely with

TRU·STOP EMERGENCY BRAKE

for Chevrolet and Ford V·8 Trucks & Buses

A RECORD—

Three Million FORD TRUCKS AND COMMERCIAL CARS

In this month of May, 1936, Ford Motor Company completes the building of three million trucks and commercial cars . . . one-third of all that have been built since the beginning of the industry.

There is no substitute for experience. Ford experience has been twofold. In addition to advancements in methods of manufacture, Ford engineers have gained a first-hand knowledge of the needs of owners in every field of hauling and delivery service. They know WHAT to build, as well as HOW to build it. They are able to design and construct units with exact knowledge of requirements . . . to anticipate changes in operating conditions and even to bring about such changes.

The 8-cylinder V-type engine, introduced by Ford into the commercial field, did just that. Bringing power to haul heavy loads at high speeds . . . and the flexibility to cover delivery routes quickly . . . it cut operating costs in all kinds of service.

Ford V-8 Trucks and Commercial Cars have been proved by the past. Experience has improved them for the future. Find out what Ford experience can contribute to your business. Call a Ford dealer today and set a date for an "on-the-job" test with your own loads, under your own operating conditions.

FEATURES OF THE FORD V-8 TRUCK

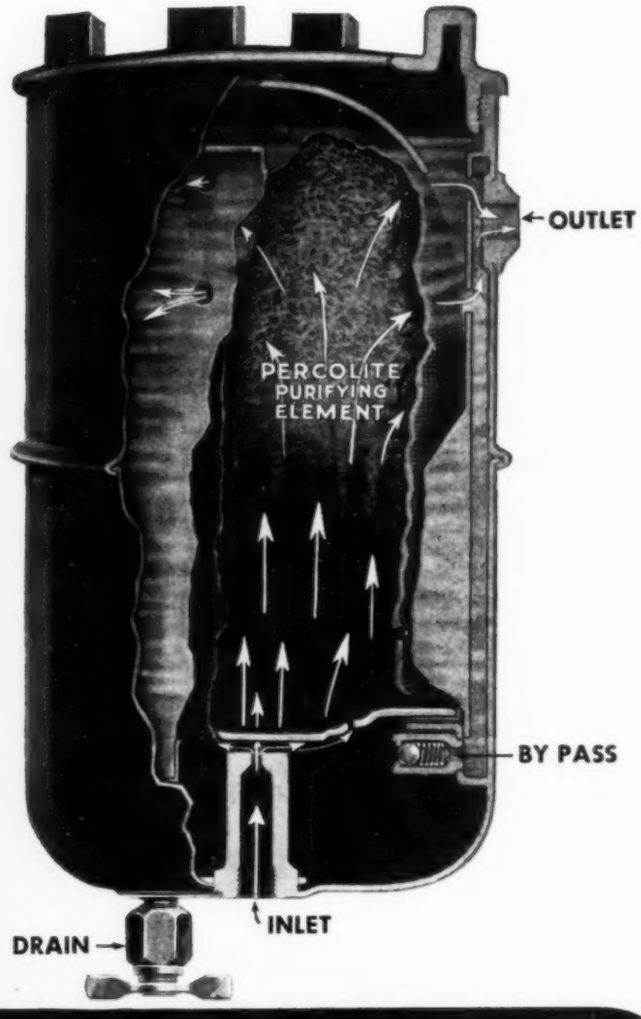
80-horsepower V-8 engine with full cylinder-length water-jackets, floating-type connecting-rod bearings, dual down-draft economy carburetor, and duplex intake manifold, exhaust valve-seat inserts, factory-set permanent valve clearances, direct-driven ignition, positive lubrication system, directed-flow crankcase ventilation.

- More ideal load distribution
- Full-floating rear axle
- Straddle-mounted pinion
- Full torque-tube drive
- Free-shackled springs
- Durable baked-enamel finish
- Quick-action safety brakes
- Heavy-duty transmission
- Centri-force clutch
- Coupe-type cab of all-steel construction, including roof
- Safety Glass throughout

Ask your Ford dealer about the Ford Engine and Parts Exchange Plan

Any new 112-inch wheelbase Ford V-8 Commercial Car can be purchased for $25 a month, with usual low down-payment. Any new 131½-inch or 157-inch wheelbase Ford V-8 Truck can be purchased with the usual low down-payment on the new UCC ½% per month Finance Plans.

FORD V-8 TRUCKS AND COMMERCIAL CARS



ANNOUNCING THE LATEST AND POTENTIALLY GREATEST OF *Arthur A. Bull's* CONTRIBUTIONS —TO— EFFICIENT, ECONOMICAL HAULAGE

FOR MORE than a decade, Arthur A. Bull, president of this company, has been searching and experimenting in new and better ways to purify oil, as it passes through your engine.

His early inventions in this field have taken leading rank with his contributions to clean intake air and to governed motor speed.

Now comes the Handy Oil Conditioner, Mr. Bull's latest. It keeps your motor oil FOREVER FRESH.

Just think what that means to you!

No more wasteful crank case drains—no more costly reclaiming methods—no more dirty, acidified oil! Instead, motor oil that is always clean, sweet and crystal clear.

Perfect lubrication always! And at the cost of only a few wasteful drains and refills.

Ask your Handy Distributor About the Handy Oil Conditioner. Or write directly to us. Right away!

HANDY GOVERNOR CORPORATION . . . . DETROIT

HANDY OIL CONDITIONER

VOL. 16
NO. 5

FLEET OWNER

MAY
1936

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF TRUCK, TRAILER, BUS, TAXICAB, PASSENGER CAR, AND ALL AUTOMOTIVE FLEETS.

Stripping *the* Thread » »

(The Editor's Column)

MORE ABOUT DIESELS

● There's always something to interest the fleet operator at the "Met" Section meetings of the S. A. E., which are held monthly in New York City. We wouldn't miss one on a bet. . . . The one held last month, for example, proved up to the usual excellent standards, and what do you think they discussed?—Diesels for trucks. . . . B. B. Bachman, who as vice-president of Autocar should need no introduction here, related the experience of his factory with two different Diesel engines which they placed in test chasses (we insist on spelling it that way) and took them out to see what they would do. His findings, while not conclusive enough to mean *everything*, were quite interesting. . . . Carl Hinkley, who has been in the engine building game since "away back when"—and who now is associated with Buda—told almost all there was to know about automotive Diesels. He proved not only that they actually run but also indicated that when *properly* used in the right kind of hauling work, they will effect remarkable economies. (Where have we heard *that* before?) . . . Mr. Hinkley seemed to favor the "freight hauler" as being the most logical user of truck Diesels, stating that sometimes the overall fuel saving represents the difference between profit and loss per trip. . . . However, in our opinion, the vocational fleets (butchers, bakers and candlestick-makers, to you) could enjoy similar savings, *provided* that they operated enough miles per day, that the runs were long and without frequent stops, and that the loads grossed 40,000 pounds or over. . . . An interesting sidelight on Diesel experience was offered by Captain George Gray, of Shell Petroleum (now we're getting somewhere) who related his *very* satisfactory experience with one Diesel-powered truck. He's still using it, he reports, and it's giving pretty nearly everything to be desired in the way of satisfaction, without benefit of smoke or smell, frequent adjustments or major overhauls. . . . If you are interested in checking back on this unit, incidentally, get out your January issue of this year (the one with the aluminum cover) and you'll find all the details on page 20—sometimes we print good stuff, you know. . . . And now that so much is off our chest, we're going to try to break into print with abstracts of the aforementioned papers; perhaps in this issue. . . . You'll be looking for them, won't you?

●

A GOOD IDEA

● On many occasions we have overheard truck manufacturers' representatives "invite" fleet operators to visit their factories and see how

their trucks are made. . . . But it's often a difficult thing to find the opportunity to steal away from one's daily tasks, with the result that the production lines "go round" and the trucks "come out"—and many fleet operators do not see them until they reach the showroom floor, or their own establishments on a demonstration. . . . Therefore, there's a moral attached to the photograph which we are reproducing in this column. . . . It represents a group of Socony-Vacuum's motor vehicle supervisors, who have recently spent a day in the Autocar factory at Ardmore, Pa., to see how their trucks are made. . . . If you recognize a few of the truck maker's boys in the picture, don't blame us. At least *most* of them are from the "fleet" side of the fence. . . . The moral is, of course, that fleet operators should maintain a more "visitive" attitude towards the truck makers. You'll find that every day is "visitor's day" at practically all factories and assembly plants. . . . At least that's one thing that *we* have found out for ourselves—and we don't buy any trucks, either. . . . So, take a day off, now that the fine weather is here, and drive out to a truck factory—any one will do. We guarantee that visits of this kind will be mutually profitable. . . . And if any questions are asked, just say that *we* invited you. We won't mind it a bit.

●

THE COVER PICTURE

● In the general movement towards greater safety, may we present on our cover this month a rather inspiring photograph. . . . A Los Angeles judge has hit upon a new way to eliminate excuses and alibis offered by drivers hailed into court for violations of driving etiquette. . . . Tired of lecturing traffic violators on the seriousness of their offenses, the learned judge now "sentences" them

(*Please turn over*)

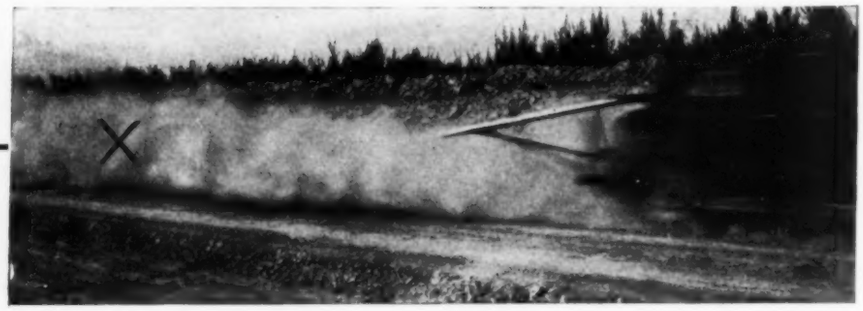
●

H. Clay Fischer
Editor

●

THE PIONEER FLEET OWNER PUBLICATION

BELIEVE IT or don't, but what looks like a badly bent flagpole in these pictures, is in reality a 1936 model dust-collector deluxe. . . . The carburetor air-intake is extended by means of a hose, to a point some 40 feet in the rear of the car, where it is supported by a single-wheel trailer. . . . Handy Governor Corporation designed this outfit for conducting tests on their new model air-cleaner. . . . The lower picture shows the outfit in action.



Stripping *the* Thread

(*Continued from page* 15)

to a viewing of Plymouth's new safety picture, entitled "*Everybody's Business*", which, he claims, is more effective than any lecture he might deliver from the bench. . . . We haven't seen the picture as yet, but since Plymouth and the National Safety Council cooperated in its making, the chances are excellent that it is a very effective one. . . . Perhaps you'd like to borrow a copy of this film for exhibition to your own drivers? We won't make any rash promises, but if you drop us a line, we'll be glad to use our most persuasive powers to try and arrange a showing for you, free, gratis and for nothing.

●

DIESEL DEVELOPMENT

● We learned recently, via our own grape-vine system, that a bus maintenance super who is well known to practically all of us, has been doing some tall experimental work "on his own". . . . Here is the story as we picked it up: He has taken a late model bus of popular make (White, if you *must* know) and has converted it into a *full* Diesel job, with a minimum of alterations, and a minimum of expense. . . . A new cylinder-head of his own casting, new pistons of his own design, and a set of Bosch fuel-pumps and injectors are the added parts. . . . We've been told that it not only runs, but that it *performs!* And more than 25,000 miles have already been piled up on it. . . . That's about all we care to reveal here, but we might comment that if this piece of work is as fool-proof as it sounds, there exists a mighty fine opportunity for *someone* to go ahead and manufacture the conversion units, pay the royalties and make scads of jack. . . . Anyone interested in this development is invited to write to your humble Editor, whose ear is always close to the ground, but who does not brag about it. . . . We'll be glad to put you in touch with the above-mentioned "convertive" genius, but we can't very well predict the kind of a reply that you will get. . . . To us it seems that the idea might catch on, especially if some parts manufacturer gets the thing into production and is able to offer conversion units for other popular makes of heavy-duty trucks and buses—or at least, for stock engines.

●

STANDARDIZATION, AT LAST

● While on the subject of Diesels, don't let us forget to call to your attention the fact that the Department of Commerce at Washington has, with the assistance of other worthy souls and committees, at last gotten up a set of standards for Diesel fuel-oils—automotive and otherwise. . . . These give the gravity, viscosity, and all that sort of thing, and, in the absence of other standards, should fill a long-felt want, even if they are only temporary—to be changed as further Diesel progress warrants it. . . . So, if the lack of proper information on Diesel fuel-oils has been preventing you from going ahead with trying out a Diesel job, that obstacle, it would seem, has been removed. . . . Now you can order your Diesel fuel-oil by a number that will really mean something, and we can trust to the leading petroleum refiners to actually supply it and make it generally available. . . . Space will not permit our publishing these Diesel fuel-oil specifications, but if you'd like to have them for your files, the Department of Commerce at Washington, for a mere pittance, will be glad to send you a copy of the new specifications. . . . We simply thought we'd keep you informed—just in case.

●

LUBRICATE FOR SAFETY!

● This month the American Petroleum Institute launches its first "*Lubricate for Safety Week*"—a very definite effort to tie in the subjects of safety and lubrication. . . . Fleet operators, we grant, do not have to be reminded of the importance of proper lubrication. With the better managed ones, *every* week is safety week, and lubrication receives its due share of attention through schedules of inspection, preventive maintenance, etc. . . . In announcing this latest effort, the Institute released some pertinent data showing how accidents may sometimes be caused by lack of, or faulty lubrication. . . . We've separated the wheat from the chaff and are presenting, elsewhere in this issue, what we believe will turn out to be a very timely article on the subject, from the standpoint of fleet operation. . . . After you have read it you will probably agree with us when we say that *every* week should be safety week, so far as fleet operation is concerned. . . . And the many interesting safety articles that you've read in this publication in recent (and not so recent) issues represent *our* contribution to the cause. . . . What are *you* doing in this great movement?

"Boss, those Catspaws are Rabbit's Feet!

— no more bad luck on Boring Jobs!"

"Watched this baby work yet, boss? Look—twist this knob, and the catspaws contact the walls, center the bar. Lock the bar in place—snap in the cutting tool. Give it the juice and keep the paws firm against the walls. That's all! Now take a squint at that cylinder—you could shave yourself in that mirror! Seems like you can't have bad luck with this outfit."

As it seems, so it is. Bad luck is completely "charmed out" of reboring jobs by these 4 patented catspaws that not only center the bar—but guide it evenly *all the way* down the cylinder walls. One quick, smooth cut and it's finished. No second cut. No honing.

There's no other shop tool that will save you as much as a Per-Fect-O Boring Bar. Your men will turn out better work and more of it, in far less time. Only Per-Fect-O can pay off like this. Get after your jobber—today—for a demonstration.

WORLD'S MOST COMPLETE LINE OF BORING BARS!

Per-Fect-O is made in 6 sizes, for all cylinders from 2.2" to 9" in diameter; from 19" to 39" deep.

VAN NORMAN

VAN NORMAN MACHINE TOOL CO., *Springfield, Mass.*

Cutting Costs *in a* Small Fleet *of* Eighteen Laundry Trucks

An Interview with
George T. Morgan, Pres.,
The Morgan Brothers Laundry
Westmont, N. J.

WHEN the Morgan Brothers Laundry of Westmont, N. J. (a suburb of Camden) was organized in 1921, only one delivery truck was utilized. Today the delivery fleet of this enterprising concern consists of eighteen attractively finished motor trucks, ten of which are illustrated within this article. The management and operation of the fleet, and the selection of the units therein, naturally, looms up quite large in the affairs of this company.

The recent purchase of the ten trucks illustrated on the second page of this article has reduced the firm's monthly delivery bill by over $400, so we are told. This new equipment, which replaces ten of their older trucks, is used for every-day work with three trucks purchased last year. There are also five older trucks in this fleet which have seen several years of service; these are used mostly for emergency and/or peak delivery requirements. The monthly saving that is attributed to the use of these new trucks is something that invariably accompanies the purchase of modern equipment—due mostly to the economy of operation, low gasoline, oil and repair expense.

Each of the Morgan trucks averages about 75 miles per day. Morgan Brothers have built up a service department for their delivery fleet that, in efficiency, is probably second to none in the South Jersey area. Even the older delivery units speak for themselves by their perfect mechanical operation and physical appearance. Yet the fleet maintenance is simplified to a point that might belie its efficiency.

A NOVEL chart is used by the Morgan Brothers Laundry to show the relative positions of driver-salesmen in their "perpetual" sales contest. . . . This idea can be used by fleets in other lines of business, of course.—Editor.

The fleet is housed in a spacious garage around the corner from the laundry. Here, once every week, each truck is completely greased and lubricated. During clear weather the trucks also are washed once each week. When the weather is wet and sloppy they are washed more frequently, in order to maintain their spic and span appearance.

At the laundry itself is a repair shop capable of handling practically all types of automotive repairs. One truck is brought in each day for a complete mechanical inspection. Under the expert eye of Joe Tamborino, the motor is checked with a motor tester; transmissions are inspected for leaks and wear; brakes are tested; electrical equipment checked; tires examined; and body scatches touched up.

After leaving the shop, the trucks could go out and pass the most severe state vehicle test. Accidents due to mechanical faults of Morgan trucks are practically unknown, Mr. Morgan declared.

Tires never are allowed to wear out. Old rubber not only causes accidents by blow-outs, but also impedes efficient delivery service by taking up the driver's time to change tires. When the tires begin to show serious wear, they are replaced by new ones. The old tires have an appreciable value when traded in for new rubber. Tires on the trucks frequently are changed from one wheel to another, in order to avoid excessive wear in one spot.

For six years Morgan Brothers have been using Service Recorders on all

(*Please turn to next page*)

trucks. These instruments are mounted on the dash of the vehicle and a fresh chart is put in every night by Mr. Tamborino. A notation of the speedometer reading is made when the chart is put in and taken out. This, with the record of gas and oil supplied the truck, gives a complete record of gas and oil consumption per mile.

Of more importance, however, is the start and stop record shown by the graph. A complete picture of the driver's activity is shown for each day. A glance at the graph tells whether a driver is properly covering his route, and even whether or not he is operating his car in the most efficient manner. Faulty operation, such as too much engine idling, is immediately brought to the driver's attention, the result being an important step toward economical driving conditions.

Excessive oil and gas consumption is checked against regularly. With mechanical operation perfect, such a condition shows excessive use of the choke or low gear, or speeding. An infallible check on speeding is offered by the Service Recorder chart. As all routes are carefully laid out, the chart tells the exact time it takes the driver when he "high-balls" for home after his last stop. A few warnings from the management, and the drivers learn to keep their speed within reason. Result: less accidents, less gas and oil consumption.

THIS close-up shows the well-known "Servis Recorder" as it is installed on the dash of every truck in the Morgan fleet, as explained in the accompanying article. . . . The "whiskers" affixed to the lower end of it are NOT standard equipment, but look very much like strings for tying tags to laundry bags.—H. C. F.

Great care is devoted by Morgan Brothers to the selection of their driver-salesmen and in training them to be efficient truck operators as well as courteous, clean-cut, go-getting salesmen. Men with high-school educations are preferred, and they must have been employed at least one week in the plant before contacting customers so that they can talk intelligently about the business.

Another four to six weeks of training is spent by each new man outside with a route foreman. There are two of these route foremen, and in addition to breaking in new men, they take out trucks of drivers who may be sick and also continually accompany the various men on their routes to keep a close check on what they are doing and to help them sustain the proper amount of sales enthusiasm.

Personality and appearance, of course, loom quite large in this new driver-salesman selection. Effort is especially concentrated on picking men who can be tactful and who can be good listeners, especially when a customer has a complaint to make and speaks her mind more or less freely. Personal appearance also counts in a big way, and men with missing teeth are particularly taboo. The importance of a clean uniform, shoes shined, and being shaved each day is continually dwelt upon.

The men are provided with trim-looking uniforms, which help a lot in enhancing this idea of cleanliness in the minds of the driver-salesmen and also in those customers or prospective customers with whom they daily come in contact.

In summer, the uniforms are of white duck with black-striped trousers; these are laundered thrice weekly. In winter they are of green whipcord and are dry-cleaned once a week. Caps of the "police type" are also worn. The name "Morgan Brothers" is embroidered in gold on cap and pocket of blouse of each uniform.

Regularly weekly meetings, which are frequently attended by outside parties who can speak on pertinent subjects as experts, are an important means of keeping the men alert and properly posted regarding their duties and the laundry and dry-cleaning business in general. Usually most of the time of a meeting is devoted to one particular subject—one week to blankets, for instance, when a representative of a blanket manufacturer will talk. At other meetings the main topic may be linens or silks or cottons, and so on, at all of which experts from outside give talks.

Thus, when a Morgan Brothers driver-salesman is called on for any particular information, he can discuss fabrics with intelligence and make valuable suggestions to the customers, which are bound to help bring about increases in business.

Now and again, also, safety is the major topic and then a state trooper or an insurance man is called in

(*Please turn to page* 20)

The 10 trucks (count 'em) which have recently been added to Morgan Laundry's fleet in Westmont, N. J. These are the units which Mr. Morgan is so enthusiastic about in this article. . . . As is generally expected when new units are purchased, an immediate saving in overall truck costs was realized as soon as these were placed into service.

JOE TAMBORINO, Master Mechanic of the Morgan Brothers Laundry fleet is a believer in equipment. . . . As proof of it he offers this picture showing how motors are tested (about every two weeks) to make sure that they are operating at peak efficiency. . . . Thus when they KNOW that the motors are perfect mechanically, any undue increase in fuel consumption can be blamed on the driver's habits. . . . The Servis Recorder helps to place the blame where it belongs, too.—Editor.

to drive home to the men necessary safe-driving precepts. Then, too, purely sales or business promotion topics are often chosen and periodical "drives" are organized to coordinate with these. One drive may be on blankets, another on lace curtains, still another on rugs, etc. Prizes are awarded to men who attain certain quotas in these drives.

So thoroughly are the two Morgan Brothers imbued with the idea that carefully trained men are a big factor in promoting the success of their concern that they occasionally even go further in this program of driver-salesman instruction by sending certain exceptional men away to school for further training to help fit them later for the positions of foremen or superintendents. For instance, at time of this interview, two men were enrolled for an eight-month course in the American Laundry Company "Zoric" School of Dry Cleaning at Cincinnati; and another for a two-year course in the Ohio Institute of Laundrying, also of Cincinnati.

Although Morgan Brothers do not expect their driver-salesmen to do any kind of mechanical work on their trucks, not even to change a tire, they do insist that each man operate his truck with care and without abusing it in any way. Woe be to the driver who ignores this dictum, and who may, for example, tamper with the governor or engage in any other flagrant driver malpractices; for then as punishment he will find an old truck called "the scatterbolt" in his place in the garage some morning and will be expected to drive it for two weeks.

The "scatterbolt" is really an antique, throws oil, has broken springs, is noisy, and scarcely lends itself to joyrides. Naturally, it is seldom used. The mere fact that this "scatterbolt" retains a place in the garage, however, serves as a continual reminder to each man that he must be an efficient driver as well as an efficient salesman.

A very interesting perforated route ticket on which the complete story on each delivery may be easily and quickly recorded, has been devised by Morgan Brothers for use by their driver-salesmen. An addressograph plate for each customer is made and with this the name together with address and account number is printed both on the upper and lower parts of the ticket in the spaces under the firm name.

By thus recording the names on route tickets beforehand, any mistakes in writing names and addresses, which may result from illegible writing performed in rain or cold, are obviated and time is saved en route. Types of laundry can be quickly identified in properly numbered spaces, and on the back of the ticket is additional space for detailed checking of laundry classified as piecework under item No. 8.

The plant of the Morgan Brothers Laundry covers a half city square and has approximately 25,000 square feet of floor space. All automotive equipment is housed in the garage, which is 60 feet by 120 feet in size. A master mechanic (Joe Tamborino) and one helper work in this garage and perform all maintenance work on the trucks. The equipment in this garage includes an up-to-date car-washing outfit.

The ten new trucks which are illustrated on the second page of this article, and also in the heading, are the new streamlined International Model C-1. These are ½-tonners with 6-cylinder engines, 125-inch wheelbase and 7-foot panel bodies. These new

(Please turn to page 62)

Safety Factor in Spark Plugs

Every truck or bus engine is run under extreme conditions frequently during its life. Extra heavy pulling in snow, sand or mud, long sustained runs at speed under extra heavy load are at least rather common occurrences in the ordinary run of truck and bus operations.

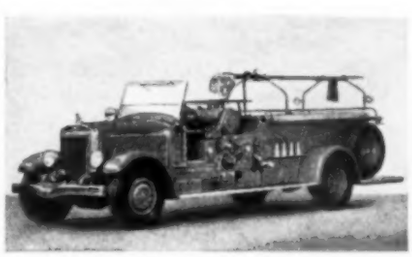
Spark plugs should have sufficient safety factor, not only to carry the job through these maximum service requirements, but after being subjected to such conditions should still take care of normal service efficiently.

A high percentage of spark plugs using the conventional cement seal construction between center electrode and insulator, develop serious leakage when operated under such severe conditions. Gas leakage between center electrode and insulator increases the temperature of the spark plug very rapidly even in normal service. A leak as low as 5 cubic centimeters per minute adds from 35° to 40° F. at the tip of the core, which frequently is the cause of pre-ignition.

The net result very often is that after even a short period of operation at high speed or extreme load, some of the spark plugs run definitely hotter than before, and for all practical purposes move up into the next hotter type in the heat range. Even in normal service this spells rough operation and excessive deterioration.

The *new Sillment seal* now used in all Champion Spark Plugs definitely remains gas-tight through the severest type of service, and thus provides a safety factor equal to any emergency, while preserving the normal characteristics of the particular type of plug specified, for the average requirements of the engine, throughout the useful life of the spark plug. Champion Sillment sealed spark plugs definitely improve the performance of every engine.

The New York Fire Department recently purchased twenty Mack-International 1000-gallon fire pumpers. As fire fighting apparatus is emergency equipment and must be ready for action under any and all conditions, Champions were naturally chosen for their dependable and never-failing service.



The Cleveland, Columbus and Cincinnati Highway, Inc. operate 233 trucks, most of which have trailers. These trucks, which travel nearly 35,000 miles daily, are kept in perfect running order and ready for instant service with the aid of Champion Spark Plugs.

Champion

EXTRA-RANGE SPARK PLUGS

Use the Spark Plugs Champions Use

TO KEEP ENGINES YOUNG, TEST, CLEAN AND REPLACE SPARK PLUGS AT REGULAR INTERVALS

WHICH • PIECE • OF • EQUIPMENT • IS • MOST • VALUABLE?

"MOTOR TESTING EQUIPMENT"

SAYS • CHIEF • MECHANIC • IN • BAKING • COMPANY'S • FLEET

•

By George N. Christenbery,

Cameron & Barr Baking Co., Chattanooga, Tenn.

A FEW months ago* the Editor of this valuable publication invited his readers to reply to the general question entitled *"What Piece of Shop Equipment is Most Valuable to You and Why?"*

In our fleet of bakery trucks, we consider our motor testing equipment the most valuable. Its uses are innumerable and it would take "volumes" to detail its importance in helping us to achieve economical operation, dependability and scheduled deliveries. I will, therefore, only outline some of the most important uses to which ours is put.

The picture on the next page shows one of our trucks being tested on a regular, factory-made motor tester, in an outside service station. The tester which we use in our own shop, however, is an "assembled" or home-made machine, with a cabinet of our own design, especially adaptable to fleet testing. It contains a compression-gauge; vacuum-gauge; starter-current indicator; ammeter; volt-meter; timing-light; spark plug tester; spark gap; buzzer; synchronizer; spring-tension scale; coil and condenser tester; and fuel-pump tester. In conjunction with this we use feeler-gauges, dial-gauges and micrometers.

One of the first things necessary in the operation of any truck engine is a good supply of electric current, as we all know, and this is determined by the Volt-Meter. In checking the battery with the starting switch closed, if we find too high a reading on the volt-meter it indicates a bad starter or starter switch. If the reading is too low, we have either a weak battery, loose or poor battery connections, bad ground connection or improperly soldered terminals.

This is all revealed to us in one minute. What other piece of equipment can do so much in so short a time? If the trouble were not found in the first place, and the work was farmed out, you can imagine how much extra we would have to pay. This way, there is considerable saving and we buy only the *necessary* parts.

Next, the Compression Gauge. In five minutes we can tell whether or not we have sufficient and even compression. Insufficient compression, as we all know, causes dozens of troubles. Bad rings, for instance, result in hard starting; costly oil consumption; blow-by, which dilutes the oil and causes bearing failures; and high gasoline consumption as well. Bad valves, too, are easily found with the compression tester, and it would take "volumes" to explain their ill effects on the motor's performance.

Blown cylinder-head gaskets are another thing you

*This Contest Entry was received too late to be included in our Prize Contest. . . . Because it is so interesting, we are reproducing it this month in the form of a general article.

Testing a truck motor with a "manufactured" motor tester. . . . The author of this article built his own motor tester and fashioned it somewhat along the lines of the one shown here.

can detect with the compression tester, and you can't let this gentleman down, as he will cause loss of water and over-heating; he will permit water to enter the crankcase and do lots of damage there; and he also will allow oil to enter the cooling system, to cut down heat radiation by insulating the cooling surface.

I might also explain that these overheating ills are conducive to abnormal expansion, followed by excessive piston, piston-ring and cylinder wall wear, to say nothing of the undue strain on connecting-rods, which sometimes springs them. In other words, the compression test is quite essential and it will often prevent various failures that would literally wreck an engine.

Next we have the Vacuum Gauge. I could not begin to tell you all about the work which this "baby" will do; so let's just hook her on to the most convenient place in the intake manifold and leave the switch key in the "off" position. Turn the engine over a few revolutions with the starting motor, and if the vacuum does not register up to snuff, the chances are that we have a bad gasket at either the carburetor-to-manifold, or manifold to motor block.

If the reading is o.k. with the revolving motor test, let's go ahead and start her up and see if the vacuum is of the required strength and if the hand is steady at idling speed. If the hand is observed to fluctuate, a little penetrating oil might "unstick" that valve. Or, we might discover a weak valve-spring or a tight valve-tappet. These, and numerous other difficulties can be disclosed by the vacuum gauge.

While we still have the vacuum gauge connected up, the carburetor can also be adjusted. Jets that give too lean or too rich a mixture can easily be detected and corrected; sometimes involving a tremendous gasoline saving. We can also give the manual spark adjustment a twist or two, and with the vacuum gauge hooked up you can set her mighty close. I am a perfect "fool" about a balanced motor, and this is a mighty good time to check it.

I have always believed that if a man was worth having, his time was worth saving, so while we are tinkering with the distributor, we might also check the shaft for wear, the points for pitting and adjustment, the condenser, wiring connections, coil, spark plugs, gaps, etc. All of these contribute to easy starting, gasoline economy, smooth performance, and last, but not least, good driver-performance.

For, when the driver is also a salesman, as in our case, it is best not to unnerve him with a balky motor and to keep him smiling. When he works in that condition, he will do a good job and "bring in the money." The latter is important, because that's the only thing that enables the "boss" to keep us fleet supervisors on the payroll. If he had nothing to sell, or had something to sell and could not sell it, there would be no trucks and no fleet managers. Catch on?

Next we turn to the Fuel-Pump Tester. Fuel is an absolute necessity in any power-producing machine and most modern vehicles have fuel-pumps. If the pump does not pick up the gasoline and convey it to the carburetor it will be "no business." With our fuel-pump tester we can test the gasoline line and fuel-pump suction all in one operation. We just disconnect the gasoline line at the tank and hook the tester on, starting the motor and observing the reading on the tester. If o.k., we attach it to the output side of the fuel-pump and if the reading is not o.k. there, it's time to exchange the fuel-pump for another.

Incidentally, fuel-pump exchange, as offered by various dealers, is a great service. It doesn't take any time at all, and the savings in delivery service time are great and many.

Now we come to the Ammeter. Ammeters, as a rule, are very delicate instruments. Trucks need rugged ammeters, and the more rugged they are, the more inaccurate they are likely to be. The ammeter on the

(*Please turn to page* 65)

Safety *is* Featured *in* Petroleum Operator's Truck Fleet

NEW fleet of streamlined tankers is claimed to be the most modern and safest of its kind. . . . How constant efforts are expended by this Company to keep abreast of all types of safety developments.

•

By J. F. Winchester,
Manager, General Automotive Division, Standard Oil Company of New Jersey.

THE constant effort of our Company is to keep abreast of all types of safety developments, in order that we may place upon the highways vehicles which are safe in every respect.

The streamlined unit illustrated on this page is representative of a large number of similar units which we have recently placed into service. We feel, from the standpoint of mechanical equipment, that these vehicles are the most modern vehicles operating on the highways today. They are equipped with many practical safety devices, most of which will warrant the following detailed description.

First, the tank units are designed of substantial material, to the specifications of the National Fire Protection Association, which specifications are the results of long and outstanding research by an organization which is rated second to none in this country. Most of the types of recommendations which they set forth, bear the seal of approval of the National Underwriters Bureau of Chicago, and are the results of constant research which is being carried forward throughout the United States.

STERN view of Standard's streamlined jobs. The hooded lights are direction-signals. We erroneously stated that this truck had none, on page 13 of our February issue. We were wrong and we're sorry.

The rear ends of these units, particularly that having to do with lights, have been carefully designed with the idea in mind of promoting safety to the traveling public and providing sufficient lighting facilities in order that these vehicles may meet all types of state requirements. We also considered the practicability of giving the approaching, as well as the following motorists a very definite idea of the driver's intentions.

Let us refer to the illustration below. The two lower hood-lights are the direction-signals. These signals are the result of long and constant study which was made with many outstanding engineers. They are manufactured in a substantial manner and in order to attract attention in the daytime as well as at night, the flashing type is used. This is operated by a device, properly built, to insure constant operation.

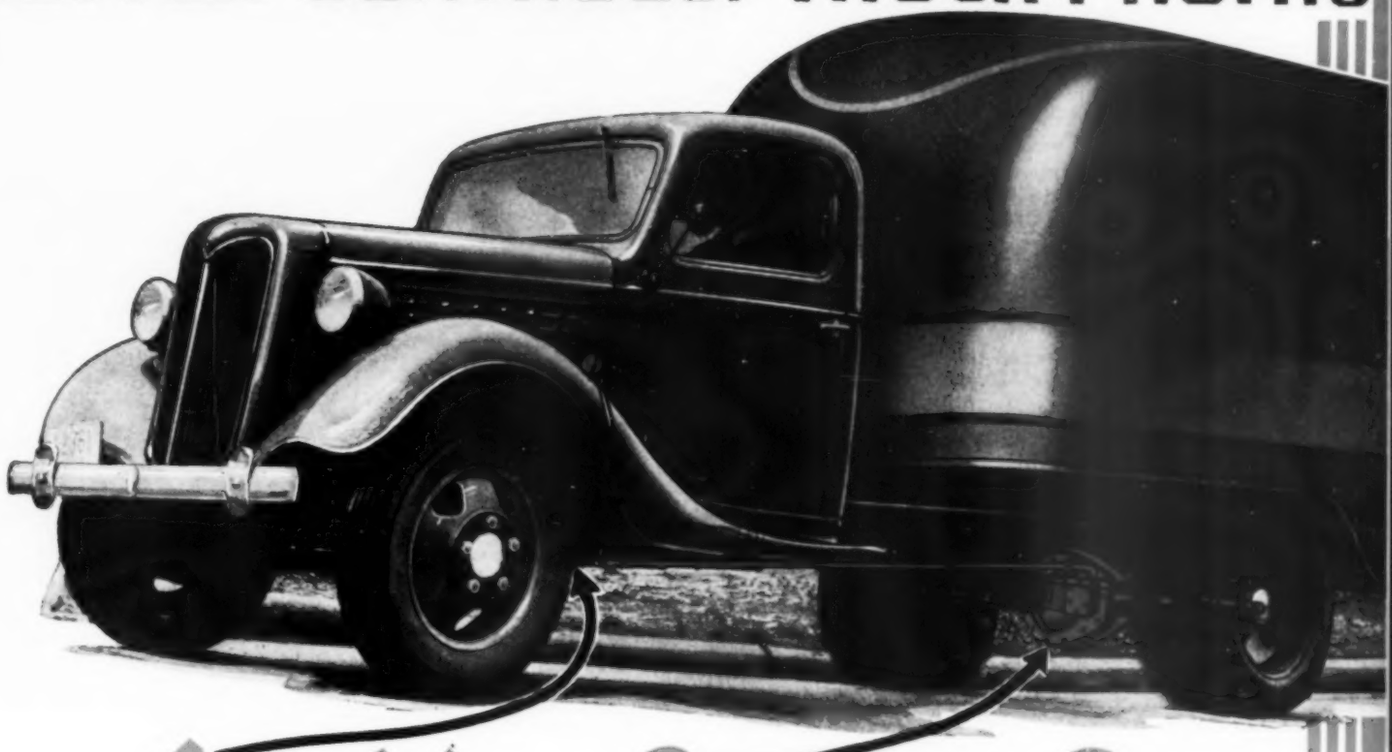
When the lighted arrow of the directional-signal is flashing at the rear, a similar one is flashing at the front of the vehicle, thus traffic traveling in all directions will have a full knowledge of what our driver intends to do, from a turning standpoint.

Located under the lower step, on both sides of the rear, are twin flashing lights — red beacons — which automatically wig-wag their message whenever the driver raises his foot from the accelerator. This flashing signal has given us a high degree of satisfaction, and enables following motorists to have a definite warning that protects them against collision with the rear end of our vehicles.

Two more flashing, or wig-wag lights are contained in the two outside lamps comprising the cluster of three at the top of the rear of this unit, the center light of this cluster being the stop-and-tail light. Other running lights, judiciously distributed on the sides and front of the unit, make the lighting com-

(Please turn to page 69)

Why this 2-speed Axle gives BETTER CONTROL *of* TRUCK PROFITS



4 Transmission speeds × **2** Axle ratios = **8** Forward speeds

THE 4 GEARS *HIGHER* than usually furnished give more economical operation because the engine turns over much slower for any given truck speed—and the 4 GEARS *LOWER* than usually furnished transmit more power, allowing the truck to handle tough jobs with greater ease.

Write for additional information explaining how these 8 forward speeds give "a gear for every road and load" and assure increased profits by the ability to adapt truck speed, engine speed, power and fuel consumption to your particular hauling condition.

EATON MANUFACTURING COMPANY • CLEVELAND

EATON 2 **Ruckstell* SPEED AXLE

**The Pioneer 2 speed Axle of which 500,000 units have been sold*

A Truck Maker

AND here are some of his early findings, based on field experience. . . . In view of the fact that these tests have not yet been completed, may we suggest that you read these "Notes" for whatever they may be worth, and remember that this Company's conclusions are in no sense final.—Editor.

IT was with the idea of becoming personally and practically familiar with the subject of Diesel Engines for Trucks, that we set out about a year ago to build and put into service some equipment which would permit us to gather this experience. Obviously, there has not been sufficient time to get very much experience and undoubtedly some things we think are so now will later prove to be wrong. For this reason it will not be possible to give many facts, but a few notes of what has been done and what has resulted, may be of some value.

The objectives of the program we developed were:

(a) to determine the design factors which would be affected by the use of a Diesel engine; and

(b) to learn how such an engine would behave from the standpoint of power, fuel consumption, lubrication and life.

The first problem was to decide on an engine. We felt that, certainly at this time, we would not wish to spend either the time or the money necessary to develop an engine of our own. Several engine makers were in the field with engines which had seen considerable use and after some study, we selected two different engines as the ones with which we would commence. In justification of the selection, I would say that we had had satisfactory business relations with one of the companies for a number of years and, therefore, considerable confidence in any product which carried their name; the other engine had been in use for a relatively long period and seemed to merit selection on that score.

From a consideration of the characteristics of the Diesel engine in general, and these in particular, we decided that the most favorable conditions for trial were those involving high mileage with a minimum of short trips and frequent stops and where it was desired to handle heavy loads.

We were fortunate in securing the cooperation of several fleet operators who were interested in obtaining operating experience with Diesel equipment. I have selected one of these operations for description mainly for the reason that they operate gasoline units in similar service and also each of the Diesel engines referred to. These units are tractors hauling semi-trailers at about 40,000 pounds gross vehicle weight.

The fact that the Diesel engines were longer and higher, made it necessary to increase the hood length and also the wheelbase about 12 inches. Weight was the next item that needed consideration. One engine weighed about 2,150 pounds; the other 1,950 pounds; while the gasoline engines weigh 1,300 pounds. In each case these weights include the necessary accessories. In addition to this, recommendations from battery makers indicated the need of a 25-plate battery and as four of these are required for the 24-volt system used, the total battery weight is 348 pounds; whereas two 19-plate batteries used with our 12-volt system weigh 134 pounds. It also seemed desirable to use a larger transmission, which added 279 pounds.

These items account for 1,293 pounds. Actually the Diesel job weighed 11,835 pounds and the standard 10,058 pounds, a difference of 1,777 pounds. The discrepancy between these figures is made up of such items as drive-shafts, which were heavier; fuel which weighs more for equal quantity but produces more miles; battery mountings and other details.

Another chassis which had the same general characteristics was then built, using the other engine which weighed 1,950 pounds. A lighter transmission was used and also a lighter rear axle. In addition, as much weight as possible was saved by reducing to a minimum

Tests Diesels

By B. B. Bachman,

Vice-President and Chief Engineer,
The Autocar Company,
Ardmore, Pa.

such items as fenders, running boards, skirtings, radiator guards, and bumpers. The weight of this chassis was 10,799 pounds, or an increase of 741 pounds.

In the first instance the chassis was built in such a way and with units for which there was reasonable assurance that a proper balance between the units existed. In the second case, to save 1,000 pounds of chassis weight some chances were taken. Unfortunately, it has not been possible to obtain any definite data on the two units, due to insufficient time. The heavier chassis has been in service about eight months and the lighter one four months and neither has shown any weakness in the chassis parts.

It is difficult to make a statement regarding the engines which is fair to them. Measured by the performance which we have learned to expect from carburetor engines, neither has yet been in service long enough to give comparative data. There is one thing which we anticipated and which has been justified; and this is that starting with our own organization, we were dealing with a new and unfamiliar mechanism. We expected that from this fact a number of troubles would arise which would not happen under more favorable circumstances.

Troubles with small parts such as fuel lines or injectors, while possibly no more prevalent than gasoline lines or spark plugs, are more troublesome when the personnel handling the unit does not so easily detect the symptoms of trouble in these items.

The oldest unit in eight months ran 62,000 miles. For about seven months or 45,000 miles, the performance from the standpoint of engine trouble was quite satisfactory. Since then the difficulties which have arisen would seem to indicate that proper preventive maintenance methods had not been devised and applied.

The second unit in three and one-half months has run 38,000 miles and has given equally satisfactory results. The rest of the story remains to be told.

Should the same conditions develop, it would seem (if these two engines can be taken as typical examples) that the Diesel engine will need major overhaul attention at a somewhat lower mileage than the carburetor engine. On the other hand, if the second unit continues to perform satisfactorily, a more favorable comparison will have been obtained.

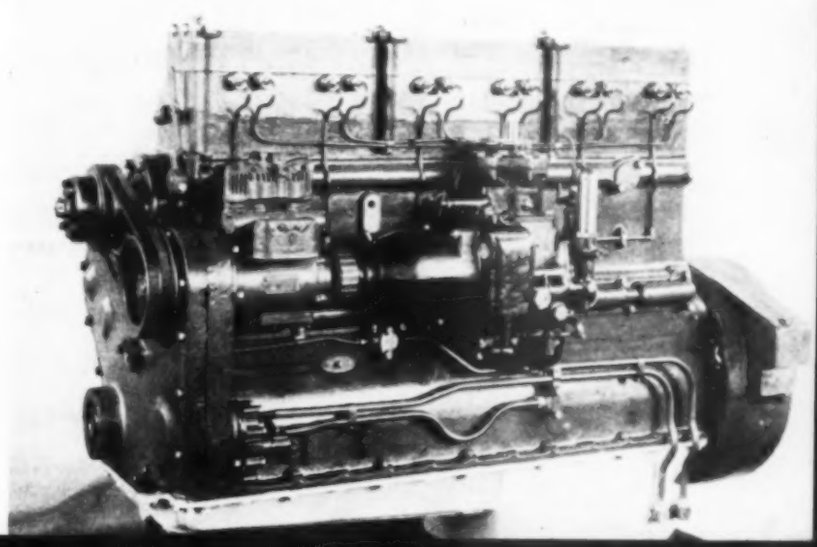
Both of these units are being operated in long distance hauling, the average round trip being about 400 miles and the gross weights about 40,000 pounds. These conditions are, we believe, most favorable for developing the characteristics of this type of equipment.

The criterion for judging the equipment will be essentially "How does it perform its functions and how much does it cost?" Neither of the questions have yet been answered by the operation cited. Some comments on the first question have been made and an attempt will now be made to supply some data on the second.

Cost should be considered from the standpoint of first cost, fuel cost, and maintenance. It seems to me that too frequently the only item that receives attention is fuel cost. The figures which are shown in the accompanying table are comparative. The units compared are similar in general characteristics and are used in the same service. The gasoline job has not received the same kind of special attention and supervision that the Diesels have, but the operation is very well organized and controlled.

In all of these figures the gasoline unit has been taken as the basis of comparison at 100. Where mileage or age affects the figures, the gasoline unit

(*Please turn to page* 28)



over the first 81,000 miles, which covers a period of 14 months, is taken as 100.

It will be noted that the first cost of the Diesel units are materially greater. In part this is due to the fact that the engines are of larger displacement, but in the main the difference is due to the greater cost of the engines and more costly accessories. Undoubtedly this differential will be reduced if and when comparable production quantities are available, but I believe there will always be a differential against the Diesel.

The other figures are not conclusive. The period of time and mileage covered by the Diesel units is not sufficient to have developed the necessary data.

The maintenance figures illustrate this point. Diesel unit No. 1 shows a very satisfactory relative cost for the period considered. Unfortunately, as has already been remarked, the later period of operation has not been and when these figures are available it is certain there will be an entirely different picture. Diesel unit No. 2 shows an exaggerated cost due to the very short time and low mileage. Therefore, no real conclusions can be drawn in this case.

Fuel consumption and cost are favorable. The figures given take into effect both saving in fuel and difference in cost per gallon. In this particular operation, taxes were paid for the Diesel fuel as well as the gasoline. Whether it is proper to take difference of fuel cost per gallon into consideration is doubtful. This question has been discussed at great length and I will not add to it here. Oil consumption and costs are also favorable.

On the other hand, due to the difference in weight, the earning capacities of the Diesel units are less as indicated by the difference in payload capacity. This difference would be reduced if the engines were more nearly of a comparable size but as in the case of purchase price, I believe the comparison will always be a bit unfavorable.

The general operating characteristics of the jobs have been satisfactory. However, to obtain this, it was necessary to give attention to securing the proper axle ratio. The satisfactory speed range of the engines is from 1000 to 2000 R.P.M. They will idle satisfactorily down to about 500 R.P.M. and have good torque to the same speed but much better results are obtained by shifting gears before these low speeds are reached. Two thousand R.P.M. is certainly the top limit for safe operation and much better results will be obtained if the speed is limited to about 1800 R.P.M. The transmissions were of the 5-speed overdrive type and operation in overdrive permitted road speed of about 42 m.p.h. with a tractive factor of .025.

One item of interest is the problem of replacing a gasoline engine with a Diesel engine. From such experience as we have been able to gather to date, there should be no more difficulty than would be experienced in replacing a gasoline engine with another of greater displacement. Up to very recently at least, the available Diesel engines have ranged from 550 to 672 cu. in. displacement. Also, the field in which they offer most attractive advantages is in heavy hauling and long distance operation.

The gasoline engines which have been used in such vehicles range from about 400 to 600 cu. in. If the gasoline engine to be replaced is on the low end of this range, the increase in displacement must be considered. However, we have not found that increasing engine size alone increases the duty imposed on transmissions, driveshafts, and axles. In some cases, the reverse is true. If the load is increased to take advantage of the greater power obtainable from the larger engine, then, of course, these parts are subjected to greater loads, but if the load is not increased, no difficulty should be experienced if the units are of a size satisfactory for the weight of the vehicle.

The clutch should unquestionably be made adequate for the engine and the remarks made above do not apply to this part. Also it is quite possible that if the engine is persistently pulled down to its low speed limit, the higher pressures developed in the Diesel engine will produce greater shocks on the transmitting mechanism. As noted before, this is not good practice for either the engine or the power train.

Regarding cooling, the statement has been frequently made that the Diesel engine requires less cooling than a gasoline engine. This seems reasonable, but it is difficult to put the matter in absolute terms. We have gathered certain data on the subject which seems to bear out the statement, however.

(*Please turn to page* 70)

COMPARATIVE DATA—GASOLINE vs. DIESEL-POWERED EQUIPMENT:

	Gasoline Unit	Diesel No. 1	Diesel No. 2
Purchase Price	100	125.5	119
Mileage to June, 1935	80,999	—	—
Mileage June, July, Aug.	18,400	20,575	—
Mileage Sept., Oct.	11,660	16,121	10,230
Mileage to Nov., 1935	111,059	36,696	10,230
Maintenance, cost per mile, to June, 1935	100	—	—
Maintenance June, July, Aug.	85.5	65.8	—
Maintenance Sept., Oct.	77.2	41.7	161.5
Maintenance to Nov., 1935	96	54.4	161.5
Fuel consumption m.p.g. to June, 1935	100	—	—
Fuel consumption June, July, Aug.	85	182.5	—
Fuel consumption Sept., Oct.	98	175	179
Fuel consumption to Nov., 1935	99	196	196
Fuel cost per mile to June, 1935	100	—	—
Fuel cost per mile June, July, Aug.	117.5	40.6	—
Fuel cost per mile Sept., Oct.	102	43.3	41.3
Fuel cost per mile to Nov., 1935	101	38.8	38.8
Oil consumption m.p.g. to June, 1935	100	—	—
Oil consumption June, July, Aug.	91.8	147	—
Oil consumption Sept., Oct.	75.6	153	170.5
Oil consumption to Nov., 1935	96.0	149.5	170.5
Oil cost per mile to June, 1935	100	—	—
Oil cost June, July, Aug.	109	68	—
Oil cost Sept., Oct.	131.5	65.4	58.7
Oil cost to Nov., 1935	104	66.9	58.7
Payload capacity	100	92.5	96.5

THIS table will give you a rough (very rough) idea of Autocar's findings on the subject of Diesels for Trucks. . . . If the blank spaces were filled in with accurate figures, more definite conclusions could be drawn. . . . However there's a certain amount of interesting data in it, and still more can be gleaned by a careful reading of the accompanying article.—H. C. F.

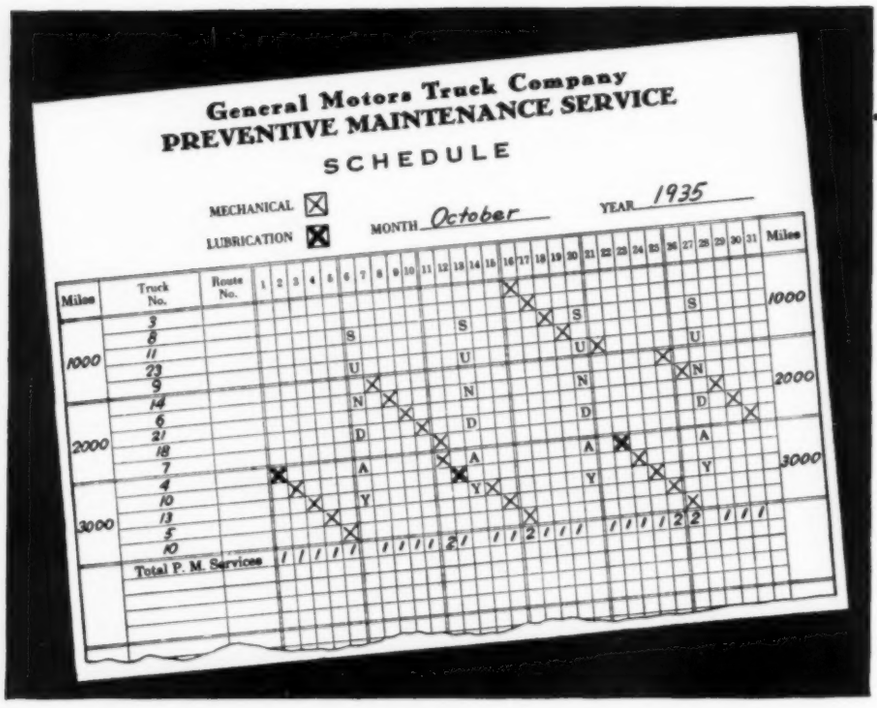
Follow the Leaders, for They Know the Way

"COPPERS COUNT AT KOPPERS"

In any business where customers' coppers count, all expenditures are first carefully counted by the executive management. Yet here we see Koppers spending more coppers for truck equipment than any short-sighted, pinch-penny policy would permit. In buying merchandise for resale in their industrial stores, or in getting equipment to haul it, Koppers know that superior quality is the essential that makes economical buying significant. Any one can buy a cheap thing cheaply. Coppers really count only when invested in satisfying quality. That is why in the nationally-known Koppers Coke enterprises, as well as in their stores, the name "Koppers" appears on many Autocars.

AUTOCAR TRUCKS

THE AUTOCAR COMPANY, ARDMORE, PENNSYLVANIA


General Motors Truck Company
PREVENTIVE MAINTENANCE SERVICE
SCHEDULE
MECHANICAL ☒
LUBRICATION ☒
MONTH October YEAR 1935
Miles | Truck No. | Route No. | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 | Miles
1000 | 3 8 11 23 9 | 1000
2000 | 14 6 21 18 7 | 2000
3000 | 4 10 13 5 10 | 3000
Total P. M. Services

PREVENTIVE MAINTENANCE

(PART THREE)

BY O. M. BREDE, DIRECTOR OF SERVICE, GENERAL MOTORS TRUCK COMPANY, PONTIAC

IN the March and April issues of this publication, we presented first, the many reasons why Preventive Maintenance should be practiced; and second, the first phase of the system which the writer's Company is sponsoring.

The second phase of this system involves three more forms—The Preventive Maintenance Service Schedule; the Fleet Preventive Maintenance Record; and the Preventive Maintenance History Record.

Taking them up in sequence, the use of the Preventive Maintenance Service Schedule accomplishes the first principle of systematic maintenance—regularity. Many systems often fail because this first principle is treated half-heartedly. We have been called into many fleet operations where maintenance was not effective, because the availability of the trucks and mechanical personnel had not been properly synchronized.

Let us review, first, the Preventive Maintenance Service Schedule, illustrated in Figure 1. In this schedule the vehicles are grouped according to monthly mileage. The schedule is sufficiently flexible to accommodate any actual mileage grouping.

The example which is reproduced at the top of this page schedules a group of vehicles operating from one to three-thousand miles per month. Note that mileage separates them into distinct classes and that the schedule automatically orders each truck into the shop every 1,000 miles.

It also provides for variations in truck operating conditions. On high mileage trucks where operating conditions are not severe, the maintenance superintendent may decide that while the truck requires lubrication each 1,000 miles, the complete "A" service is only necessary each 2,000 miles.

A red "X" on the schedule signifies that lubrication only is required. Again taking a high mileage truck, but this time assuming severe operating conditions, the use of a black "X" only, indicates the necessity for the complete "A" service each 1,000 miles. (Ed. Note: In Figure 1 the red "X" is shown in dark shade, while the black "X" is shown in light shade.)

The schedule is made up monthly—Sundays and Holidays are blocked out—and the services are distributed through the available working days to provide a reasonably even flow of work through the shop. The "peaks and valleys" so often prevalent, are leveled out, resulting in a more economical and efficient shop operation.

The second of these forms—the Fleet Preventive Maintenance Record—although perhaps formidable in appearance, is really very easy to maintain and to the practical eye reveals maintenance facts instantly. It might well be termed the "heart" of the system. This form is shown in Figure 2. The pertinent items of record are: (1) Mileage; (2) Date service was performed; (3) Nature of the repair; and (4) Mechanic performing the repair.

The nature of the repair is coded in accordance with a breakdown outlined at the foot of the form. Some operators have gone into further detail on coding—assigning the letter "A," for instance, to all adjustments; "R" for replace; "L" for reline; etc. "2-A," therefore, would indicate a rear axle adjustment; while "4-A" would signify a brake adjustment. Others are using the form in conjunction with a flat rate schedule, which makes it possible to assign a definite operation number to each detail of repair.

Referring directly to the three trucks whose history appears in Figure 2, we were recently called upon to make an analysis of a fleet consisting of some 200 pieces of equipment which had been operating without any maintenance system. In a review of the completed analysis, the repair history of these

three trucks was so interesting that we decided to portray it directly on this form.

Regular repairs are shown in black. (Medium-face figures are used to denote black.) Repeat work is shown in green. (Light-face fignures are used to denote green.) Road failures are in red. (Boldface figures are used to denote red.) There were fourteen repeat operations and three road failures on Truck No. 479 in four months.

Discussing road failures first, we find that faulty ignition points were the cause of two of the failures and in each instance the points were replaced as evidenced by operation 7-1200. The code number (20) in each case indicates a "tow-in." The mileage accumulated between these two failures was only 3,000 and since contact point life is considerably more than this, some other unit contributed to these failures. Very likely the condenser, but in neither instance was the condenser checked nor replacement made.

The third road failure occurred as a result of clogged gasoline lines —Operation 12-1230, although the vehicle was in the shop for engine tuning just a few days before (8-100).

The examples of waste which were brought to light, as the repeat work was charted, were really serious. Several units of the vehicle were involved, but the generator and water pump seemed to be the most constant offenders.

The generator first appears on February 22, at which time an attempt was apparently made to adjust the charging rate (Operation 7-1820); but later it was decided to overhaul the generator—(Operation 7-2000). The repair was apparently satisfactory for approximately one month, but under dates of March 26, 27 and 28, the charging rate was adjusted and again on April 2, 4 and 5. April 6, it was again decided to overhaul the generator (7-2000). There had been an accumulation of only 700 miles between these two major repairs and five different mechanics had tried their hand at correcting the difficulty.

The water pump appears on March 10. (Operation 6-950)—repack pump. The repacking continued at frequent intervals March 24, 27, April 10, and June 9—five attempts to stop a leaking water pump in less than 90 days.

Other evidence of inefficient workmanship is found under Operation 8-100; tune engine. This was performed on March 27, although the engine had received the same treatment some 200 miles previous. It was tuned again on April 19 and six days later, on April 25, the engine was again tuned—the vehicle having been run only 147 miles.

Let's look at vehicle 482. The record on this vehicle starts with a road failure on February 23. The report shows that it was necessary to tune the engine and clean out the gas line (Operation 8-100 and 12-300).

The following day the engine failed again—this time it being necessary to replace the contact points and condenser (7-1200 and 7-1500). This correction was apparently successful because there is no further evidence of ignition trouble.

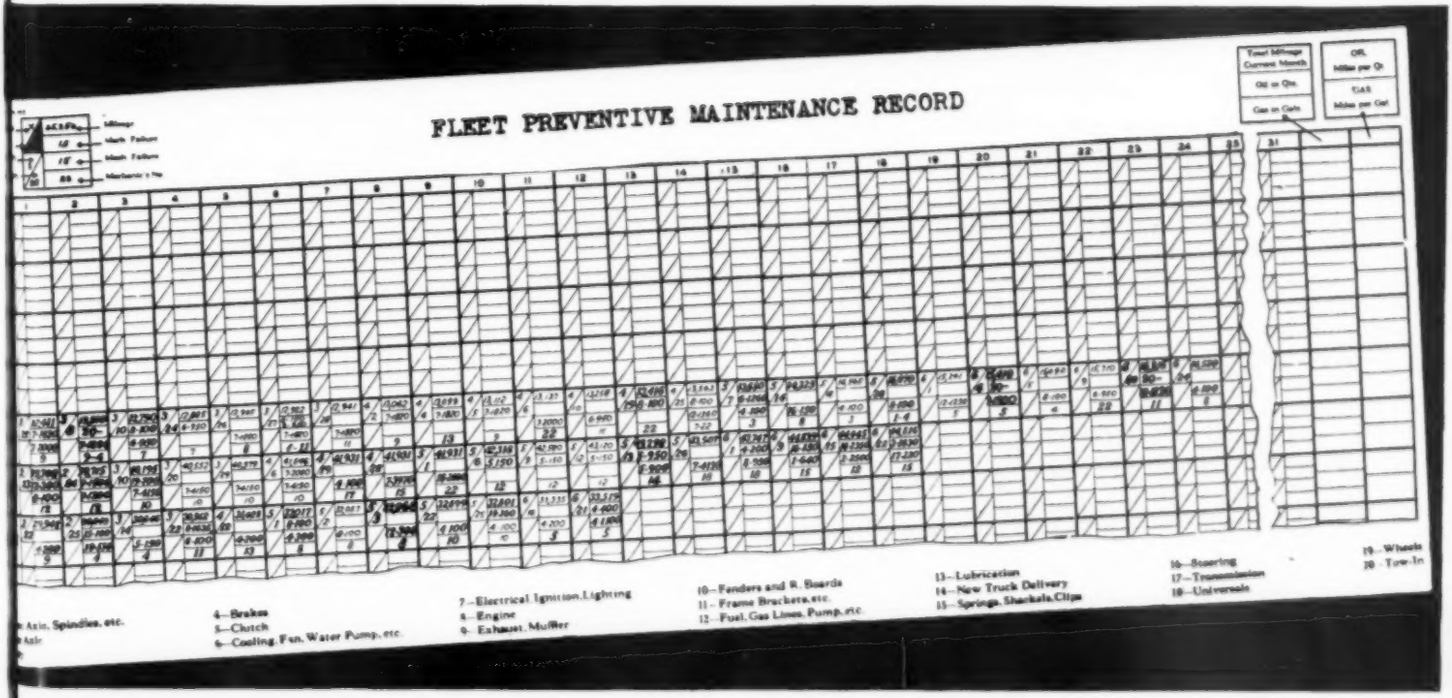
On the 10th of March, among other operations, the battery was removed, charged and replaced (Operation 7-4150). This operation appeared again on the 20th and 29th. Finally, on April 6—in conjunction with a fourth recharging of the battery, the generator was overhauled (7-2000) — apparently correcting the condition.

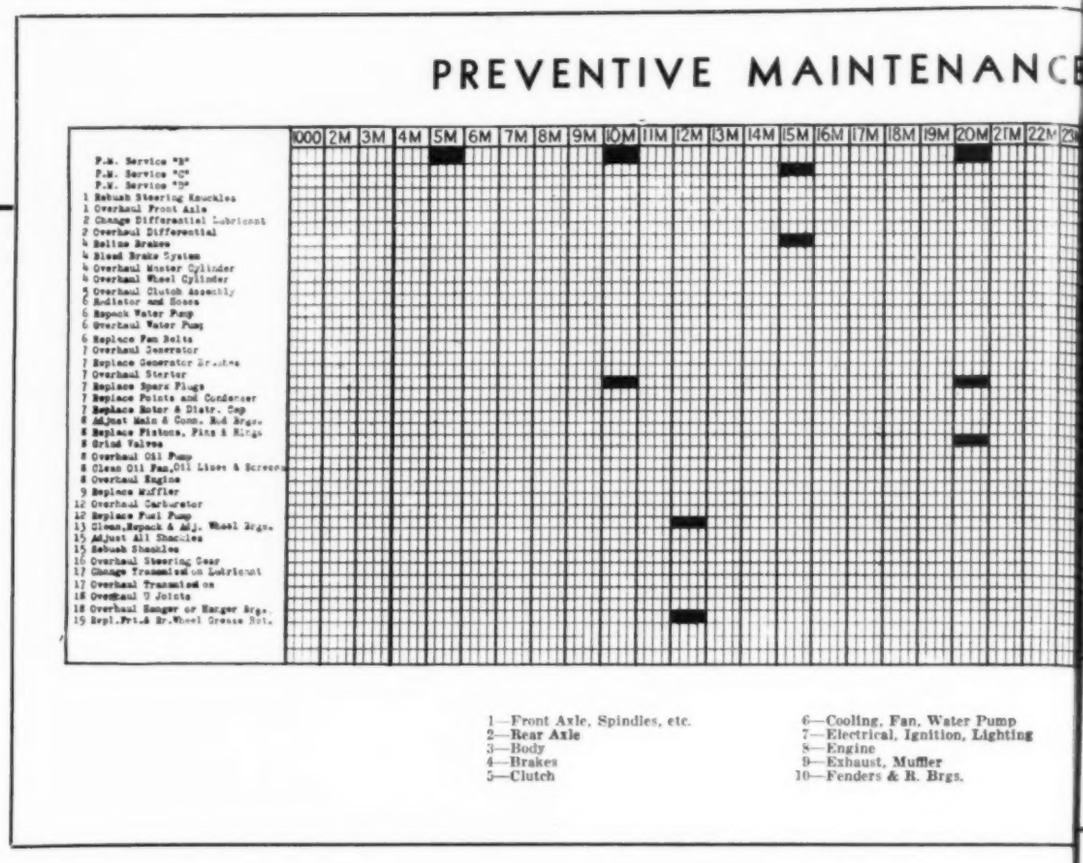
The fact that the speedometer cable was out of order for a period of some two weeks is indicated by the same mileage reading for the period of April 19 to May 1.

On May 6, it was necessary to adjust the clutch — (Operation 5-150). This operation was performed on the 9th of May and again on the 12th. On May 13, the clutch failed entirely, making it necessary to tow the vehicle to the garage and effect a complete repair—(Operation 5-900 and 5-950).

Vehicle No. 490, a different make than No. 479, reflects a similar condition, the operation being fairly

(*Please turn to page* 32)




PREVENTIVE MAINTENANCE
1000 2M 3M 4M 5M 6M 7M 8M 9M 10M 11M 12M 13M 14M 15M 16M 17M 18M 19M 20M 21M 22M
P.M. Service "B"
P.M. Service "C"
P.M. Service "D"
1 Rebush Steering Knuckles
1 Overhaul Front Axle
2 Change Differential Lubricant
2 Overhaul Differential
4 Reline Brakes
4 Bleed Brake System
4 Overhaul Master Cylinder
4 Overhaul Wheel Cylinder
5 Overhaul Clutch Assembly
6 Radiator and Hoses
6 Repack Water Pump
6 Overhaul Water Pump
6 Replace Fan Belts
7 Overhaul Generator
7 Replace Generator Brushes
7 Overhaul Starter
7 Replace Spark Plugs
7 Replace Points and Condenser
7 Replace Rotor & Distr. Cap
8 Adjust Main & Conn. Rod Brgs.
8 Replace Pistons, Pins & Rings
8 Grind Valves
8 Overhaul Oil Pump
8 Clean Oil Pan, Oil Lines & Screens
8 Overhaul Engine
9 Replace Muffler
12 Overhaul Carburetor
12 Replace Fuel Pump
13 Clean, Repack & Adj. Wheel Brgs.
15 Adjust All Shackles
15 Rebush Shackles
16 Overhaul Steering Gear
17 Change Transmission Lubricant
17 Overhaul Transmission
18 Overhaul U Joints
18 Overhaul Hanger or Hanger Brgs.
19 Repl. Fr. & Br. Wheel Grease Ret.
1—Front Axle, Spindles, etc.
2—Rear Axle
3—Body
4—Brakes
5—Clutch
6—Cooling, Fan, Water Pump
7—Electrical, Ignition, Lighting
8—Engine
9—Exhaust, Muffler
10—Fenders & R. Brgs.

consistent until May 1st when the engine was tuned. The following day, May 2nd, the engine was again tuned. On May 3rd, a road failure is reflected and the carburetor was overhauled, which apparently eliminated the necessity for daily engine tuning.

The brakes began to demand attention on May 22, when an adjustment was performed—(Operation 4-100). Again, on May 25, the brakes were adjusted and on the 16th of June they were freed up and adjusted—(Operation 4-200). One June 21, it was necessary to reline the brakes and when this was done, drum replacement was also necessary (Operation 4-400 and 4-1100).

This Fleet Preventive Maintenance Record serves another purpose, because its study permits the gradual separation of the "Jockey" and the "Careful Driver." Vehicles requiring constant attention, traceable directly to abuse, stick out like the proverbial "sore thumb" and the necessary corrective measures can be taken, substantiated by facts.

It is also possible to use this form in a slightly different manner than as shown in this example. You will note in the upper right hand corner a code arrangement incorporating daily gasoline and oil useage. Without sacrificing valuable information, such as we have shown in this example, fleet operators who do not maintain a separate gasoline and oil record use this code rather than the one shown in the left hand corned of the chart, which is the one we have shown in the example.

The third and final form of the system is the Preventive Maintenance History Record, shown in Figure 3. The information recorded on this form when used in conjunction with the previous forms constitutes the Preventive, or "Repair Before Failure" type of maintenance system.

Thirty-seven items of repair are arranged on the left hand side of the form. They are numbered to correspond with the same code that is used throughout the system. This form is flexible since items may be changed or added to as found necessary in a particular fleet. Opposite the repair operations are fifty-two heavy-columns, each representing 1,000 miles of operation—providing a 52,000-mile history.

Previously I associated the "B," "C," and "D" Preventive Maintenance Services with definite advanced mileages for purposes of illustration, but I said at that time, that the items contained in these various services did not necessarily apply literally to all makes of vehicles and all types of operations. If they did, there would be no necessity for a history record such as this.

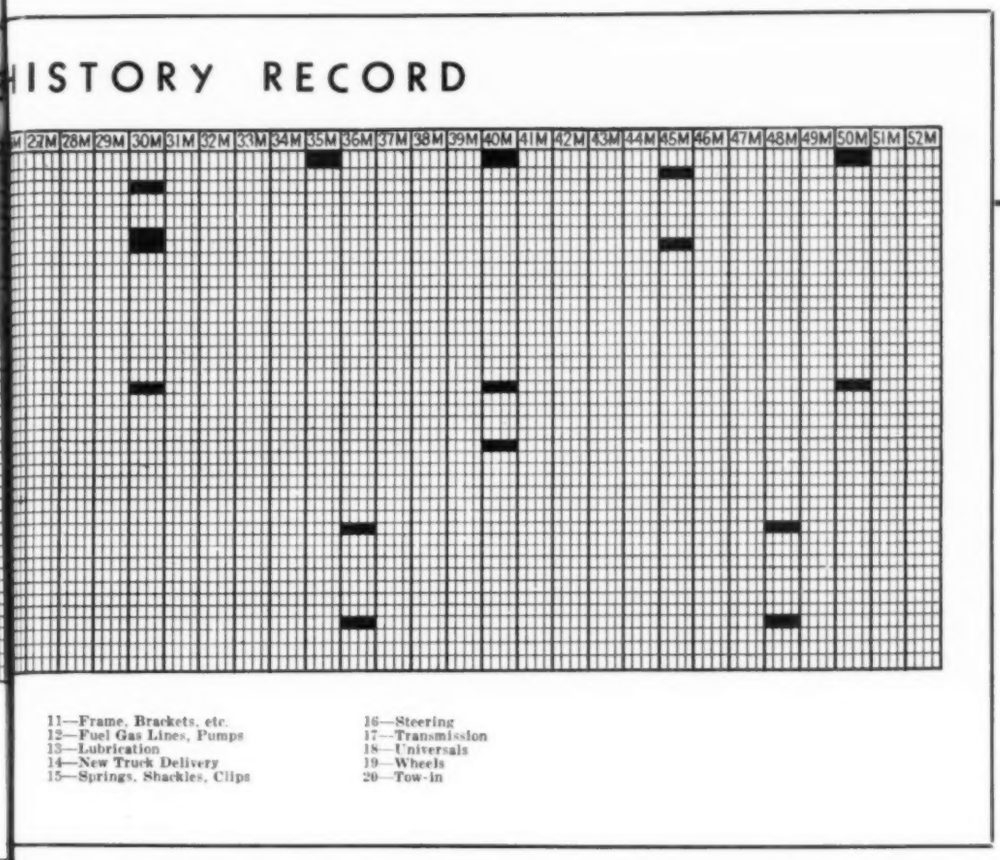
Assuming, however, that Services "A," "B," "C" and "D," are in effect at the mileage periods we previously used — namely, 1,000; 5,000; 15,000; and 30,000 miles, we have illustrated here how deviations from these definite mileage periods may be recorded to suit variable operating conditions.

We have placed the "B," "C" and "D" services in their respective mileage brackets. You will recall that the "D," or 30,000-mile service, included a complete brake reline; however, if because of very severe service, brakes last only 15,000 miles, brake relining—front and rear—is then blocked out on this chart at 15,000 mile intervals.

Another example—let us assume that new spark plugs at 10,000-mile intervals improve performance and economy. The chart is blocked out at 10,000-mile periods to care for this.

The "C" or 15,000-mile service includes valve reconditioning; but, assuming that experience has proven that 20,000 miles is correct, this item is removed from the "C" service and moved up to 20,000-mile periods.

The "C" or 15,000-mile service includes the cleaning and repacking of wheel bearings and the replacing



of grease retainers, but, using a low mileage factor, let us assume that experience indicates that this should be done a little more frequently. It is then moved down to 12,000-mile periods. These items are then removed from the "C" and "D" services and treated individually each 12,000 miles.

These are a few examples of how fleet history may be recorded on this chart. The chart is referred to each time the vehicle is brought into the shop for service.

Specific analysis of a fleet, as mentioned previously, might also change the periods at which the "B," "C" and "D" Services should be performed—either moving them up or moving them down the mileage range and if this is done, the chart, of course, should reflect the changes.

It may be used either for a single vehicle or a group of vehicles identical in make, model and type of operation. For instance, assuming a fleet in which there are ten vehicles engaged in practically the same type of work—let us say package delivery—accumulating approximately the same mileage and operating, of course, under comparable conditions; generally speaking, one history record will serve such a group.

In the same fleet there may be ten or fifteen vehicles engaged in similar service but whose routes extend into outlying districts of a city. Mileage, therefore, being greater, these vehicles would probably constitute a second group, etc. Make, model and type of service must be collectively analyzed before grouping vehicles is attempted.

Briefly, this is an outline of the General Motors Truck Company's Preventive Maintenance System. This or a comparable system is essential if the inroads of waste and neglect are to be curbed and supplanted by economy and care.

I have treated the problem in the strict service sense, making no mention of miscellaneous shop forms or other activities, such as purchasing, dispatching, accounting, etc. These and other divisions of an operation each have their own importance.

Turning from the material to the human side of service problems, lax maintenance methods on both passenger and commercial vehicles are responsible for some portion, and we believe a sizeable portion of the dreadful accidents which occur daily in this nation. Death, injury and property damage by automotive vehicles have attained such alarming proportions as to reach the ears of legislation. Vast sums of money are being spent on safety programs, warning devices, highway signs, compulsory vehicle inspection, etc. The last item, compulsory vehicle inspection, is but a form of Preventive Maintenance which if universally adopted would be of material aid in reducing preventable accidents.

If the thought could be thoroughly impressed on all personnel connected with fleet operations, that repairing in fleets is the very last resort of maintenance—that every other means should be utilized before having recourse to repairing and that the efficiency of the maintenance of the fleet is inversely proportional to the amount of repairing undertaken—great strides would be made in the development of fleet maintenance. True, there comes a time when repairing is inevitable, but the maximum effort should be concentrated on postponing this time to the latest.

In conclusion, may I again recognize the good work that has been done, especially by large operators, on the "REPAIR BEFORE FAILURE" type of maintenance and I suggest that everyone connected with the fleet maintenance industry promote the use of a Preventive Maintenance System, whether it be this or one based on similar principles. It is my sincere belief that a national acceptance of Preventive Maintenance, will go a long way toward solving our service problems.

SPRING • IS • THE • TIME • TO • THINK • ABOUT • SELECTING

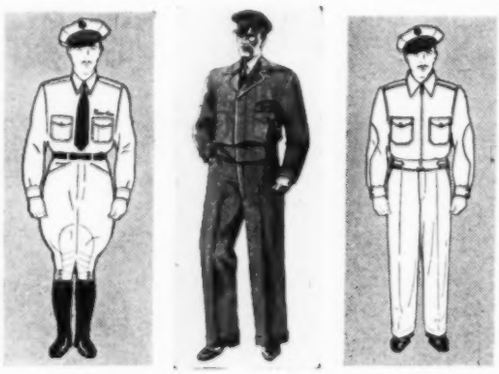
DRIVERS' UNIFORMS

By H. Clay Fischer,
Editor, FLEET OWNER

THE opening-up of business conditions during the past couple of years has been accompanied by several very definite trends. In our own field, for example, better attention is being paid to the physical appearance of the vehicles themselves, and to the men that drive them. The trend towards modernization and streamlines may be observed without much effort on anyone's part. Similarly, the adoption by many fleets of *some* kind of standardized wearing apparel for their drivers, is a trend that should be recorded somewhere—along with Amateur Hours, Mickey Mouse and the Music that went Round and Round. So, we will try to review here some of our reactions to this question of Drivers' Uniforms, gained from actual experience in the field; particularly since exactly one year ago, when this subject was first discussed in FLEET OWNER.

It goes without saying (but we'll say it anyway) that dressing a bunch of truck drivers in some kind of a standardized attire, makes all the difference in the world—and the psychological reaction works both ways—on the drivers themselves; and on the public. Look at the bunch of drivers in the group photo above. The uniforms which they are wearing immediately tell you that they are a fine, clean-cut aggregation of Railway Express Agency drivers. Without the uniforms, one might mistake them for a bunch of WPA workers, hard at their daily toil.

Not only in large, nationally-operated fleets are driver uniforms desirable. Bus operators, taxicab companies, laundries, dairies, bakeries, common and contract carriers, and other types of operators would do well to emulate the many other fleets that are uniform-equipped—and let the results speak for themselves.



HERE are three popular styles in Uniforms for truck and bus drivers. . . . Another style substitutes breeches for the long trousers. . . . Other combinations can be worked out, too. . . . The Editor will be glad to furnish further information on request.

It's an old story, but one that is well worth repeating. You know that your drivers contact more of the public than perhaps any other branch of your personnel. Therefore, does it not behoove you to see that they are walking, talking advertisements for your company? Of course it does; and of course you value this kind of advertising; who doesn't?

The trucking industry has been the recipient of many "black eyes". Might we suggest that it is sometimes because certain drivers perhaps have appeared to be a nondescript lot, for, as Mr. Shakespeare once said, "Apparel oft proclaims the man." . . . and such stuff. Besides, standardization is a charitable soul—and charity begins at home.

Let us quote one prominent fleet operator on the subject. When interviewed last year he said: *"Uniforms have transformed our employees into 'personnel.' When we presented the idea to our drivers there was a bit of resentment at first; some had the idea that they would become menials, and lose their individuality and personality—two precious possessions of the American workman. But after they wore them a week, they soon lost this feeling and now they wear them with considerable pride. We put this idea over by a short personal talk to each driver, explaining to him that he is the symbol of a service—a better and more efficient service—and when he steps from his truck, our customers and others will remark on his fine, efficient appearance and make a mental note that there is one firm with whom they like to deal."*

So much for the "sales talk." There are uniforms and uniforms, and many fleet opera-

(*Please turn to page* 35)

Your Search for the Right Truck Ends Here

IF HAULING AT LOW COST is important in your business, then no matter what your requirements may be, there's a truck for your job in the International line. The 26 International models come in a total of 70 wheelbase lengths. Six-Wheel Trucks are available in dual-drive and trailing-axle types.

Each year increasing numbers of business men realize that this complete line holds the best solution to their hauling problems. They recognize the extra value that International Harvester is able to build into every truck that bears the name. More than thirty years of perfecting International all-truck construction means a great deal to every user.

INTERNATIONAL

Above: The International Model CS-35-T Six-Wheel Truck. This new truck has 1½ to 4-ton capacity and features a 2-speed rear axle which doubles the number of transmission speeds, giving you 8 speeds forward and 2 reverse.

The Same **STRENGTH** *of* **CHARACTER** *in Rugged Six-Wheeler and Sturdy Half-Ton Truck*

Streamline panel stake body

International Tractor Truck

Dump body, heavy-duty chassis

One of the Six-Wheel Internationals

MANY of the most spectacular hauling jobs in the world are being done by *International* Six-Wheel Trucks. Because these units perform successfully under conditions that would be more than a match for conventional four-wheel trucks, International Six-Wheel Truck owners have learned to rely on these sure-footed, heavy-duty trucks for the hardest work of the day. They know from experience that they can count on International for power, stamina, and economy. They know, too, that International service will keep International Trucks on the job.

You are in a special class if you use these Six-Wheel Trucks, but *any* International model will give you *heavy-duty stamina in proportion*, whether you choose the biggest truck in the line or the popular Half-Ton chassis—or one of the many models between these sizes. We shall be glad to mail you information on an International Truck to meet your needs. Or phone the nearest Company-owned branch or International dealer for details.

DEALERS . . . *The International franchise offers you an exceptional combination of quality trucks, attractive prices, a full range of sizes, and unequaled sales and service support through Company-owned branches. Write us direct, or ask the nearby branch for complete information.*

INTERNATIONAL HARVESTER COMPANY
(INCORPORATED)
606 So. Michigan Ave. Chicago Illinois

Half-Ton Pick-Up Truck

1½-ton Panel Truck

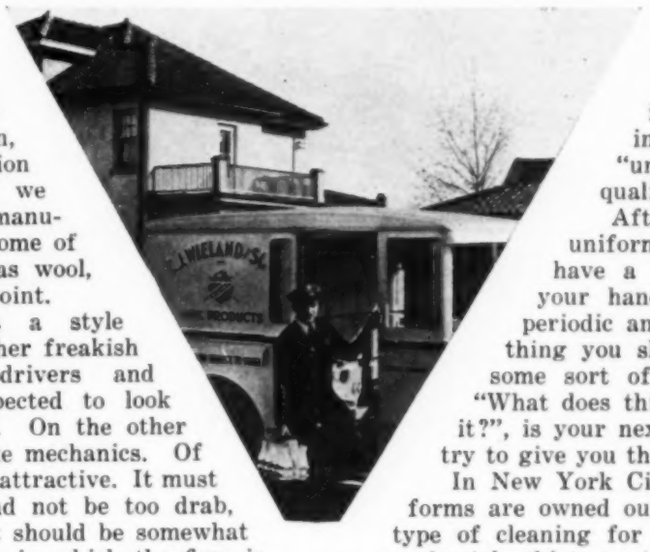
1½-ton Refrigerator Truck

Heavy-Duty Tank Truck

INTERNATIONAL TRUCKS

WHAT WILL WELL-DRESSED DRIVERS WEAR? *(Continued)*

Most all of the house-to-house fleets are now uniforming their drivers in attractive garments. . . . Even the interstate freight haulers are beginning to realize that a well-dressed driver is just as good an advertisement as an attractively painted vehicle. . . . This article points out that uniforms for drivers offer many advantages and gives several ideas to assist you in adopting them.—H. C. F.



tors are confronted with the problem of how to equip their men—what kind of uniforms for winter—what kind of uniforms of summer. And since the winter is now over, we shall not attempt to discuss in this article anything suitable for that season, but shall confine our discussion to cotton uniforms, which, we understand are now being manufactured in many varieties, some of which give the same effect as wool, from the appearance standpoint.

When selecting uniforms a style should be chosen that is neither freakish nor impractical. Truck drivers and driver-salesmen are not expected to look like navy admirals or actors. On the other hand, they should not look like mechanics. Of course, the uniform should be attractive. It must create favorable attention and not be too drab, lest it fail in its purpose. It should be somewhat characteristic of the industry in which the firm is engaged, and *must* be comfortable and best suited to the activities of the wearer. And, last but not least, it should be attractively priced in first cost and sufficiently durable to assure economy in the long run.

For example, the purveyor of food products where cleanliness is a prime requisite, will invariably outfit his drivers in white or khaki uniforms, even to shoes and caps, although puttees (if any) and shoes may either be brown or black. Laundries will use light blue or khaki, and sometimes white. Drivers of oil trucks and general delivery men will find dark grey or brown whipcord or herringbone patterns to be practical, as these will not soil easily. And as to coal-truck drivers, we'd recommend any color, "providing it is black."

Many fleet executives who have not used uniforms seem to have the idea that they cost a lot of money. This is a fallacious belief—it's not a fact. An industrial uniform manufacturer who supplies many fleet operators throughout the country, tells us that the cost of cotton uniforms ranges from about $2.50 to $12.00 per man, depending of course, on the extent of elaborateness to which the operator wishes to go. This estimate is based on the premise that the uniforms will be purchased outright.

One question often asked is, "Shall we buy the uniforms, and pay for them ourselves, or shall we make the wearer pay for them?" Both plans are used in various fleets, and it depends, naturally, upon the policy of the company and their relations with their employees. Undoubtedly you know which plan will work out better in your own operation. But here is something concrete on which to base your decision:

Some firms buy all of the uniforms and sell them to the employees at the wholesale cost, accepting installment payments. Other firms refund these payments after the employee has been with the firm for six months or a year. And still others permit their men to buy their own, insisting that these be of as good quality and the same color scheme and style as the standard of the company. Naturally, it will be found more economical and practical for the firm to place a group order with a reliable manufacturer or dealer who specializes in industrial uniforms. By doing so, a better price and "uniform" (no pun intended) quality will be assured.

After you have secured your uniforms, you will find that you have a "maintenance" problem on your hands, since uniforms require periodic and proper service. The first thing you should do is to arrange for some sort of uniform cleaning service. "What does this service cost, and what is it?", is your next logical question. We will try to give you the answer.

In New York City, for example, when uniforms are owned outright, the "double-service" type of cleaning for cotton uniforms, costs approximately thirty cents per uniform; this service including dry-cleaning, water-washing, starching *and* ironing, according to a firm which specializes in this work.

We asked this firm to explain just how the work is done, and here is what they told us. "The proper way to handle cotton uniform work is to first give it a solvent dry-cleaning to remove all grease; then a water-washing, using a mild soap and luke-warm water. This latter procedure removes stains which the solvent does not take out, perspiration stains, etc., and also gives the cloth an even appearance. Next a small amount of starch is applied and the uniforms are carefully ironed. Of course, all mending and darning is also taken care of."

This firm advises you to find a reliable "dry-cleaning laundry"—not the ordinary steam or wet-wash laundry, and to insist that the above procedure be followed when giving them your uniform work. If you do, you can expect your uniforms to last from 10 to 12 months if washed weekly; and about 5 to 6 months if washed twice-weekly. If two sets of uniforms per man are used, alternating between washing, they will last twice as long, of course.

Many operators make the mistake of allowing their employees to have their uniforms laundered at home, or sent out with the wife's wet wash. This system *might* work out, but best results can be obtained if the above procedure is followed. A lot depends, of course, upon the amount and kind of "dirt" which the uniforms pick up.

In connection with proper cleaning, it is to be presumed, of course, that the leading uniform suppliers can recommend the *right* kind of a service, whether or not you own, rent, or your drivers own the uniforms. If not, it is quite important that you secure the services of a "dry-cleaning" laundry, as before suggested. Should you decide on the rental basis, however, the problem of cleaning will not be yours. Uniform-renting companies can furnish a variety of outfits, delivered at any periods specified, clean and

(Please turn to page 64)

1. Gummy, sticky piston-rings.
2. Clean, sludge-free piston-rings.
3. Sludge on valves causes loss of power.
4. Clean valves, free of sludge, mean full power.
5. Sludge-clogged oil-screen causes burned-out bearings.
6. Clean oil-screen, free of sludge, insures positive oil-flow.

SLUDGE--WHAT IS IT?

By A. L. Bergquist,
Lubrication Engineer

WHAT is oil-sludge, that sticky, gummy, tarry substance which clings to valves, valve springs, piston rings and other parts of automotive engines, pulling down power and increasing operating costs? Mainly it is carbon, dust or other material held together by a sticky binder of oxidized oil.

Foreign materials are always present as a result of normal engine operation—products of combustion—carbon in finely divided form (smoke)—dust drawn in through the carburetor or breather—and minute particles of metal from bearing, ring and cylinder wear, combining with oxygen to form metallic oxides.

These materials do not readily combine in service and cause sludge, unless oxidized oil is present. The degree to which sticky, gummy oil-sludge is formed in automotive engines during operation depends upon how thoroughly those unstable elements which oxidize quickly have been removed from the oil in the refining process.

From the foregoing, it is evident that there is a great disadvantage in the use of poor oils which expect the engine to take out the tar and other undesirable constituents during operation, when they should have been removed at the refinery in the first place.

If it were possible to get rid of the detrimental elements as quickly as they were formed in service, satisfactory performance could be maintained indefinitely, but unfortunately here is what happens:

Sludge and gum build up, gradually accumulating and filling in the slots in the oil-control rings, the oil-return holes under these rings and around the compression rings, sticking them fast in their grooves, causing piston-slap and actually throttling power through lack of compression.

And that isn't all. At the same time the rings fail to seal the compression, blowby forces unburned heavy ends of gasoline and products of combustion down into the crankcase, diluting and contaminating the lubricating oil.

On the intake stroke, excess quantities of lubricating oil containing minute particles of sludge are drawn into the combustion chamber and thence to valve stems and guides. Stewed-down sludge or gum on valves or valve mechanisms subsequently causes irregular running of the engine, overheating, burned valves and loss of power.

Sludge, gum and carbon are all closely related—sludge when stewed down by heat becomes gum, and gum when burned becomes carbon.

Sludge increases the consumption of both gasoline and oil, operating costs go up, and maintenance expense is increased.

In order to secure the best performance from automotive engines, it is of the utmost importance to use only high-quality lubricants, in which the unstable constituents which might cause sludging, have been removed at the refinery.

Sludge-emulsions are quite different from oil-sludge. Water and oil will not normally mix under ordinary conditions, but oil can be caused to form a stable emulsion with water by violent churning or agitation if there is in the oil any material capable of acting as a binder, such as dust or blowby carbon.

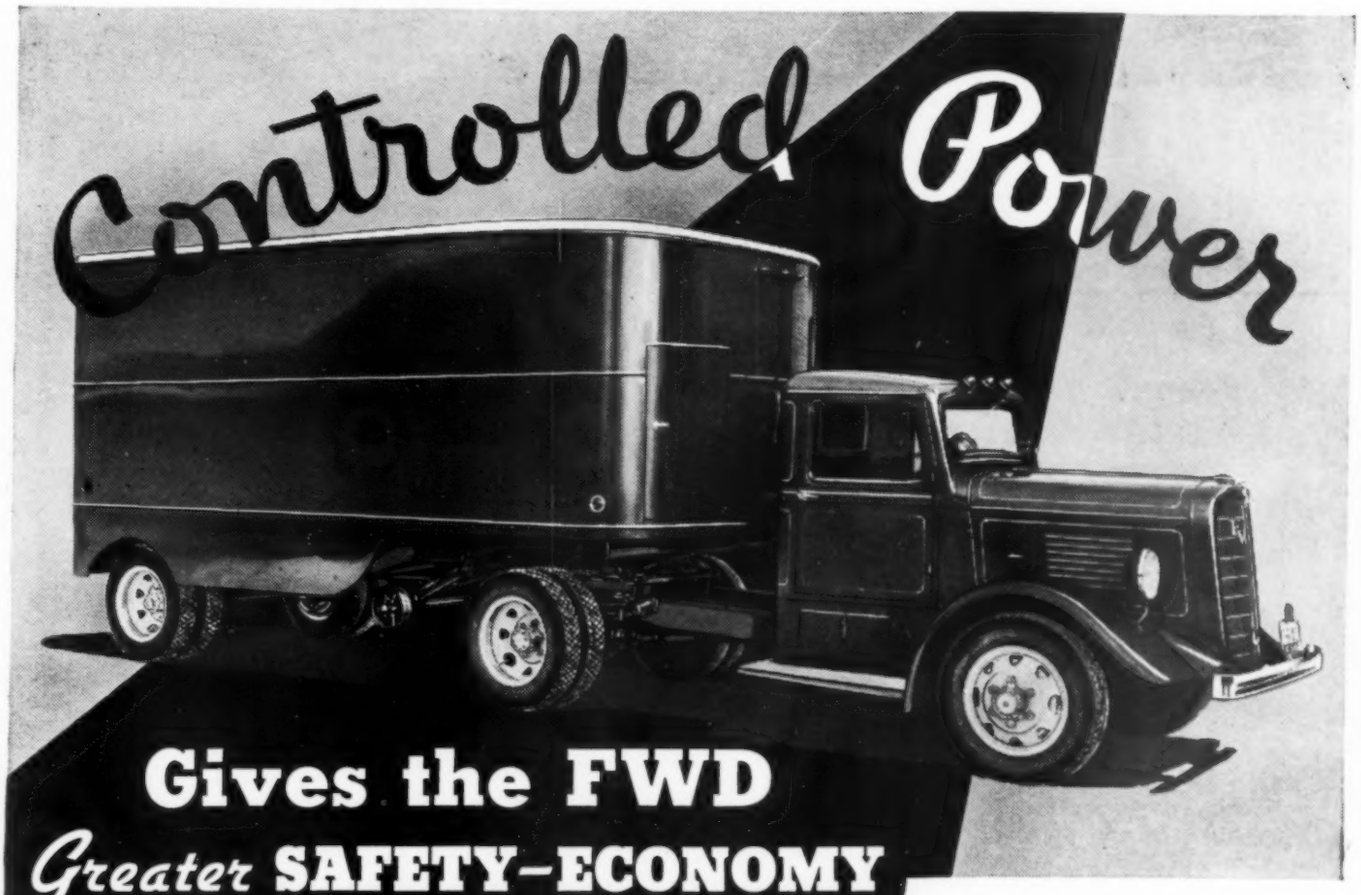
Even with the finest oils, sludge emulsions may develop from cold operation during prolonged idling periods between heavy load service.

Under such conditions, moisture accumulates in the crankcase and is beaten up with the grit and blowby carbon, resulting from normal engine operation. Poor fuel with high sulphur content, sludge from oxidized oil and other foreign material will accelerate the formation of these emulsions.

Under normal summer conditions, however, an excess of moisture is not present in the crankcase; but under winter operating conditions, particularly in intermittent service, water accumulation is a common occurrence.

Good oils will resist the building up of sludge emulsions, but no oil—no matter how good—can absolutely prevent their formation when water is present. These

(*Please turn to page* 62)



Gives the FWD *Greater* SAFETY–ECONOMY DEPENDABILITY

THERE are numerous advantages embodied in the FWD Truck . . . But they are all summed up in *Controlled Power* . . . The rugged construction of the FWD, its reserve power and its principle of four-wheel-drive give it positive traction with safety at high speeds under all road and weather conditions.

FWDs, with their powerful engines, wide range of gear ratios and four-wheel traction, cut down trip time by being able to "make" the hills, curves, over poor going, faster than ordinary trucks . . . There is no necessity for over-speeding on the straight stretches . . . FWDs are engineered for proper mounting of any type of body or special auxiliary equipment so as to gain maximum operating performance.

Let us give you the detailed story of FWD's CONTROLLED POWER. *Write today.*

FWD

THE FOUR WHEEL DRIVE AUTO CO.
CLINTONVILLE, WISCONSIN
***Canadian Factory,* KITCHENER, ONTARIO**

TRUCKS
1½ TO 15 TONS

5 STEPS TO UNMATCHED TRUCK PERFORMANCE . . .

1. **GREATER SAFETY.** Front axles are set back, resulting in **power,** as well as load being distributed to all four wheels. This gives the FWD sure footing on slippery pavements, in congested traffic, and when going around curves.

2. **GREATER DEPENDABILITY OF SERVICE.** Reserve power, rugged construction throughout, and true application of the four-wheel-drive principle, insure continuous operation under any condition. Backed by a nation-wide organization of parts depots and service men available at a moment's notice.

3. **FASTER SERVICE.** FWDs, with their powerful engines, wide range of gear ratios and four-wheel traction cut down trip time by being able to "make" the hills, curves, and poor going, faster than average trucks. No necessity for over-speeding on the straight stretches.

4. **WIDER RANGE OF OPERATION.** Four-wheel traction enables the FWD to handle its regular hauling job easily and do the tough jobs as a matter of course.

5. **OPERATING ECONOMY.** Definite savings are made in gasoline, tire wear, maintenance cost, and other "out-of-pocket" expenses. This is the result of equal distribution of power, load, and scientific four-wheel-drive construction throughout.

CONTROLLED POWER ON AND OFF CONCRETE

Analyzing 1935's Motor Vehicle Accidents

NATIONAL molibization of safety and allied groups to educate the individual driver and pedestrian is urged as the biggest single forward step which can be taken in reducing motor accidents.

"Legislation, better engineering of highways and strict law-enforcement are highly essential to increased safety, but the most effective progress will be through individual education about safety among as many people and from as many sources as possible," declares a report of a survey by Bird Rees, New York statistician.

"America is aroused by the appalling toll on the highways, but sound remedial measures must recognize that the problem is largely individual. Responsibility for 380,000 deaths in this country in the past fourteen years, or 50 per cent more than the total number of Americans who were killed or died of wounds in all wars in which the nation has participated, can be traced primarily to individual carelessness."

That the mechanical condition of motor vehicles had little influence on accidents in 1935 is evidenced by an analysis of over a million cars and trucks that were in accidents, since 95 per cent were shown to be "apparently in good condition."

Of the motor vehicles in accidents, 80.4 per cent were passenger cars; 13 per cent were commercial trucks; 3.7 per cent taxis; and 1.2 per cent buses. In fatal accidents, 77 per cent were passenger cars and 18 per cent commercial cars.

"As to the location of accidents, we find the greatest number of accidents—36 per cent—as well as persons injured—38 per cent—occurred at street intersections," the report continues. "But fatal accidents occur in the greatest numbers—38 per cent—on open highways; and 'between intersections' ranks second with 24 per cent.

"During the normal hours of darkness, 6 p.m. to 6 a.m., about 60 per cent of the fatalities took place, and about 14 per cent came between 1 a.m. and 6 a.m. Each hour from 6 p.m. to 10 p.m. averages 7.5 per cent of these fatalities. Exceeding the speed limit is the outstanding cause of death. It requires fifty yards of travel to stop from a speed of fifty miles per hour.

"Most of the fatal accidents occurred on Sundays and Saturdays while the driver is going 'straight ahead'; and 94 per cent happen while male drivers over twenty-five years of age are at the wheel.

"The greatest number of accidents—45 per cent—and the greatest number of injuries from any one cause—50 per cent—were due to collisions between automobiles. The greatest number of deaths from any one classification—16,030, or 44 per cent—were the result of motorists striking pedestrians.

" 'Did not have the right of way' caused the largest number of accidents—26 per cent—and the greatest number of persons injured—27.2 per cent. 'Exceeding the speed limit' caused the greatest number of deaths—7,240, or 31 per cent, and was second in both the number of accidents—23 per cent—and persons injured—23 per cent. 'On the wrong side of the road' resulted in the second largest number of deaths—17 per cent.

" 'Pedestrians crossing between intersections' leads in the number of accidents—27 per cent; of persons killed—28 per cent; and of persons injured—27 per cent. 'Children playing in the street' was second in the number of accidents—16 per cent—and of those injured; and fourth in the number of those killed.

"Last year there were 826,000 automobile accidents resulting in 36,100 persons killed and 895,280 injured. This makes the past two years' daily average 100 killed and 2,265 injured. The annual economic loss is estimated at $1,500,000,000, which is nearly equal to the total annual wholesale value of motor car production.

"Last year 'sudden death' came to more pedestrians—44 per cent in automobile accidents—than to any

(*Please turn to page* 62)

Mack WRITES TRUCKING HISTORY IN 1936!

First . . NEW LOW-PRICED MACK JR

Then . . TWO MORE TRAFFIC TYPE MACKS

Now New! Smaller! Lighter!

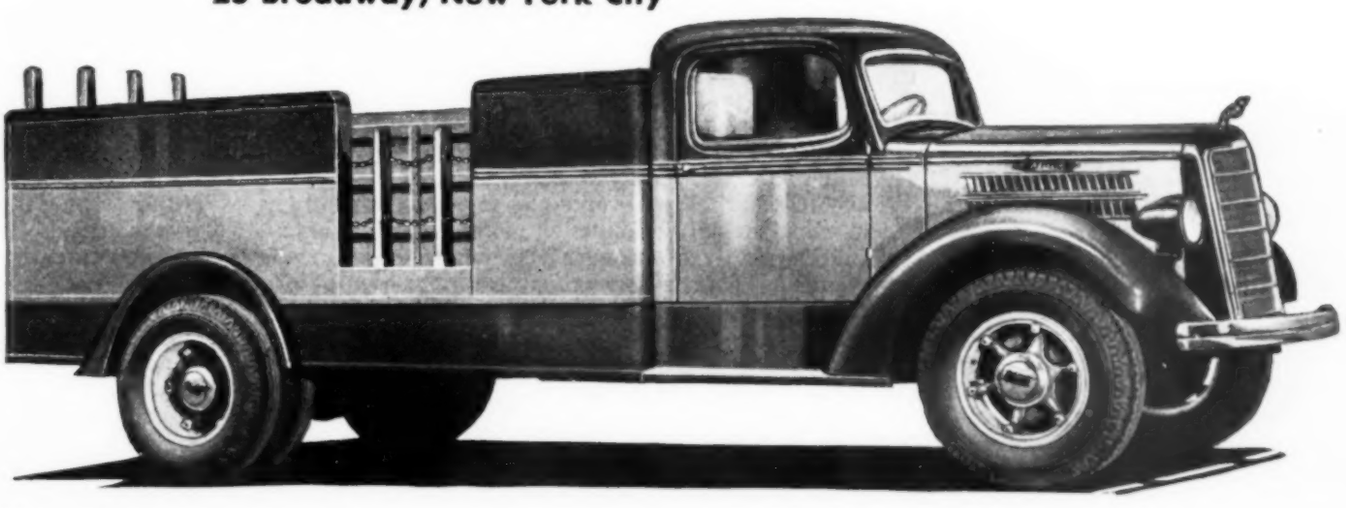
A New, Lighter MACK

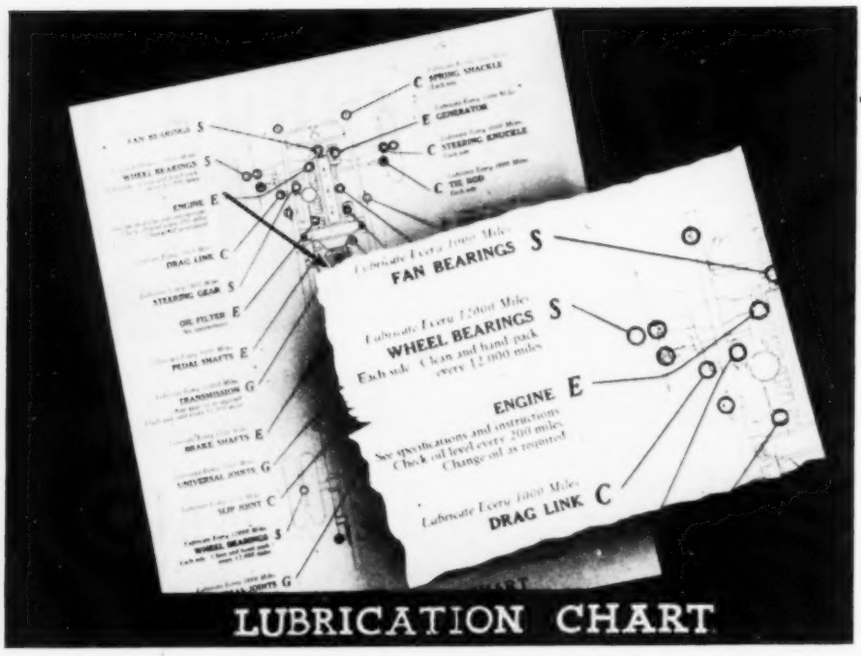
HERE'S the greatest truck sensation of the year—the long-lived dependability and enduring economy of a thoroughbred Mack within the reach of new thousands of operators.

Model EH is introduced for loads hitherto below the Mack capacity range . . . beautifully styled with streamlined hood, luxurious cab and full-faired fenders . . . powered by Mack's masterful BG engine for brilliant performance . . . long, shock-insulated springs for easy riding . . . Archimoid steered and fully equipped. Here's top quality never before available in a truck of this size.

Mack now offers the most complete line of trucks in the industry—from the low-priced, lightest-duty Mack Jr to the heaviest-duty Mack. The entire line is fully manufactured by truck-builders—and sold, financed and serviced directly by the Mack organization, through 76 factory branches.

MACK TRUCKS, INC.
25 Broadway, New York City





Let's Lubricate *for* Safety

THE American Petroleum Institute launches "National Lubricate for Safety Week" and points out many specific instances showing how accidents may often be traced to lack of, or faulty lubrication as a contributing factor. . . . So, Let's Lubricate for Safety!—Editor.

THE increase in the number of highway accidents within the past few years has aroused public attention to the need for remedial action. Various efforts currently are being made to promote highway safety, but the task is difficult and demands cooperative action because of the numerous, often conflicting, factors involved.

Primarily, highway accidents may be ascribed directly to carelessness, recklessness, or human failure on the part of motor vehicle operators. However, the weather, and the condition of the highway and of the motor vehicle also are important factors.

In view of this situation, it has been recommended that the petroleum industry make a practical effort to promote safety by putting into effect and perpetuating the basic principles and policies presented in a safety program which, in principle, have been approved by representatives of companies and associations comprising more than half the marketing branch of the industry.

This program contemplates that, beginning with the period May 23 to 30, 1936 designated as "*National Lubricate for Safety Week*," the various marketing companies will adapt to, or incorporate in, their advertising and sales promotion mediums the idea and the slogan—"Lubricate for Safety"—and shall explain how regular and periodic lubrication and checking of motor vehicles will promote safety, by assuring their maintenance in a safe-operating condition.

Accidents resulting from lack of lubrication apparently have two main causes. The first is excessive driver-fatigue occasioned by hard-working parts. The second is mechanical wear, breakage, or failure occasioned by lack of, or faulty, lubrication. A contributing factor in both cases may be improper lubrication, which indicates the necessity of entrusting vehicles for lubrication to trained men and the advisability of stocking a complete line of specialized lubricants.

A properly lubricated vehicle prevents excessive driver-fatigue, and consequently prevents accidents arising from human failure, by assuring the prompt, easy, and complete functioning of all working parts of the vehicle. The lubricated car is regarded as a safe-operating vehicle also because steering wheel, brakes, and other parts function with quick and certain response to the driver's touch. Easy riding resulting from proper lubrication is seen as a deterrent to driver-fatigue. On the other hand, lack of lubrication may cause not only driver-fatigue, but difficult handling and slow response, with possible resulting accident.

It is recommended that advertising and promotional copy developed for the "*National Lubricate for Safety Week*" program, and subsequently, avoid overstatements and exaggeration in linking accidents to lack of lubrication. Engineering departments of various companies have available reliable supporting data clearly showing the results of lack of lubrication as revealed by cases of wear, failure, or breakage of parts.

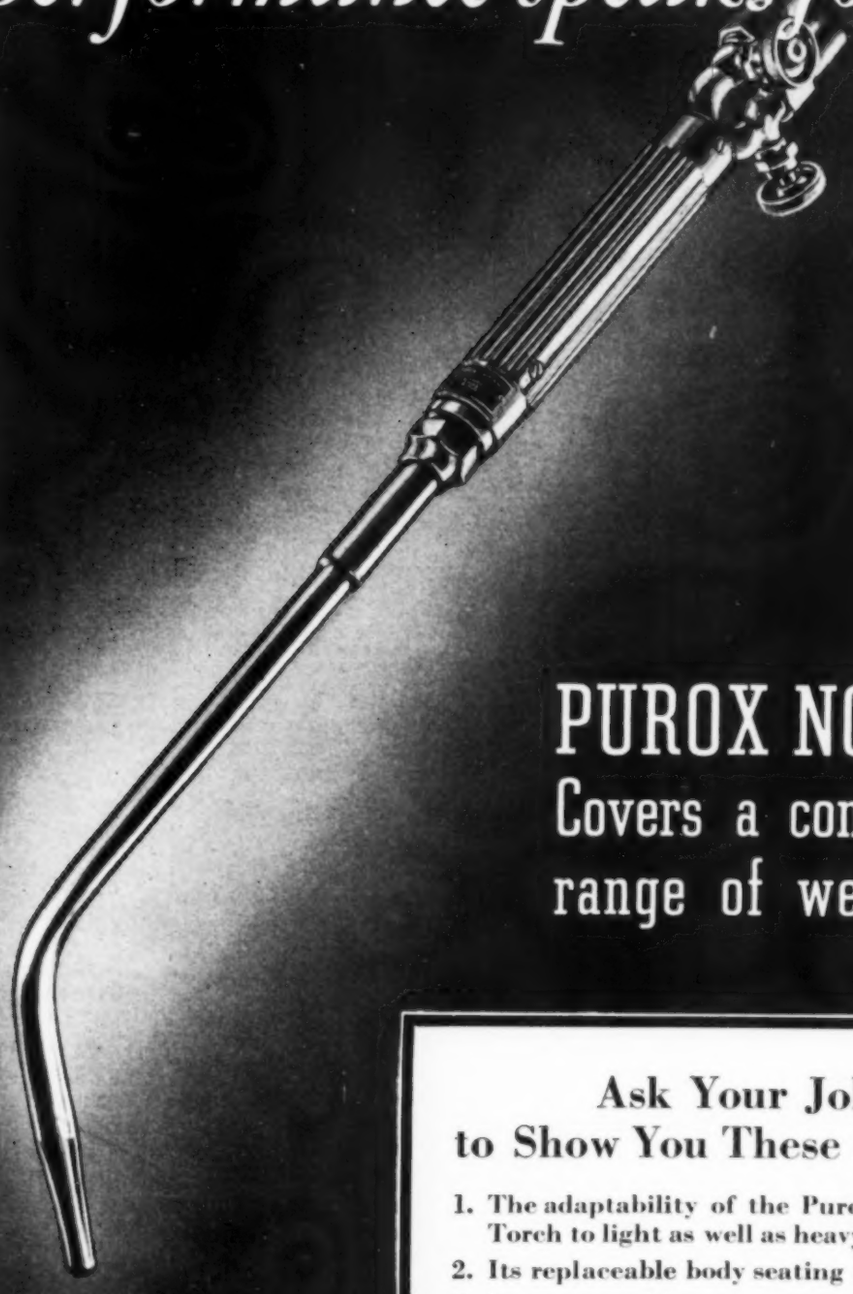
The following data are presented as supplemental information and as typical of the kind of data which may be used in promoting public adoption of the "Lubricate for Safety" slogan and idea. Fleet operators, especially, will be interested in the following specific instances:

1. Universal Joints—Lack of lubrication may be responsible for failures of front universal joints. Such failures sometimes permit the drive-shaft to fall to the road while the vehicle is in motion, with possible loss of control and accident. Cases are on record of shafts dropping from this cause, swinging under rear wheels, and overturning the car. In other cases, parts or cars have been wrecked.

Automatically-lubricated front

(*Please turn to page* 42)

Its performance speaks for itself



PUROX NO. 35
Covers a complete range of welding

Ask Your Jobber to Show You These Advantages

1. The adaptability of the Purox No. 35 Welding Torch to light as well as heavy work.
2. Its replaceable body seating coupler plug.
3. Its non-sensitiveness to pressure variations.
4. Its superior flashback resistance.
5. Its perfect balance — and greater strength.
6. The unusual range of its 9 heads — a range normally requiring 15 heads.

- Purox No. 35 Welding Torch, with Heads No. 2, 3, 5, 7 and 11, Hose Connections and Wrench, costs but $30.00

THE LINDE AIR PRODUCTS COMPANY
Unit of Union Carbide and Carbon Corporation
UCC
NEW YORK

PUROX
WELDING AND CUTTING APPARATUS AND SUPPLIES

PRODUCT OF A UNIT OF UCC UNION CARBIDE AND CARBON CORPORATION

universals have been known, in cases where lubrication was lacking because too low a level was maintained in the transmission, to have caused seizure of the transmission main shaft rear bearings, shearing off of front universal joint, and dropping of drive-shaft to ground. Insufficient lubrication of universal joint splines have been known to cause sticking and ultimate breakage of the yoke at the front end.

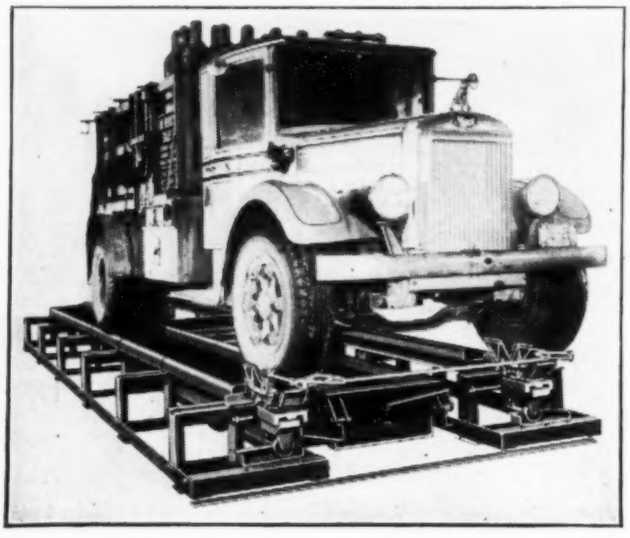
2. Brakes—Faulty or lacking lubrication of brake cables may cause all braking effort to be applied to one wheel, with little effect in stopping the vehicle, but a major effect in starting a skid. Improper, or lack of lubrication in the case of mechanically-operated brakes causes unequal brake action, and resulting skids. Brake experts report that a large proportion of brake failures is due to grease on linings caused by use of wrong lubricant; use of too much lubricant in rear axle or rear wheel bearings; and to worn grease retainers.

3. Steering System—Lack of lubrication in any working part of the steering system contributes directly to driver-fatigue, to wear, to breakage, and consequently to accidents. Frequent lubrication is needed here not only to assure easy and proper operation, but also for inspection purposes. Lubricating the steering system frequently leads to discovery of worn or broken parts.

Insufficient lubrication of drag-links and tie-rods is directly responsible for hard steering, excessive wear, breakage and other mechanical failures, as well as for occasioning slow response or lost control in cases of emergency. Cases are not infrequent in which drag-links and tie-rods have dropped from cars which were in motion, causing them to be completely out of control. Many of these cases have been traced definitely to abnormal wear caused by lack of lubrication in the ball joints.

4. King Pins—Lack of lubrication of king pins quickly results in abnormal wear, difficult steering, wheel shimmy, and other steering system troubles which make complete and prompt control impossible. There are many cases of difficulty arising from frozen king pin bearings, making it difficult to turn the wheels quickly.

5. Springs—Lack of lubrication of spring bearings and shackles is known to lead to breakage of springs near the eye, particularly when shackles are frozen and the car strikes a bump. Occasionally, as a result, axles turn over under the car. Lack of spring bearing and shackle lubrication also causes hard riding and contributes to driver fatigue.



LUBRICATION and Inspection, of course, go hand in hand. . . . Front-end maintenance is rapidly gaining in momentum in the truck and bus industry. Here's the latest piece of equipment especially designed for this purpose. It has just been called to our attention. Maker's name and address sent on request.

6. Motors and Parts—Use of the correct crankcase oil and maintenance of the correct level is essential to safety of the financial investment in the vehicle. Frequent and periodic lubrication prevents motor stoppage in places of danger or embarrassment. Lack of lubrication in the ignition distributor may cause seizure of shaft or bearings and breakage of gears, with motor stopping instantly. Lack of lubrication in fan hub, water pump, timing chain or gears, and other working motor parts invariably lead to breakage and cost, and sometimes to accidents. It is essential to highway safety that the motor function properly and constantly. Periodic and thorough lubrication works to that end.

7. Front Wheels—Broken front wheel hubs and spindles frequently are traced directly to lack of lubrication. Breakage while the vehicle is in motion is a direct cause of accidents.

8. Rear Axles and Differentials—Rear axle shafts not infrequently shear off at the bearings because of seizure resulting from lack of lubrication. In such cases a rear wheel may come completely off, causing increased repair costs or accidents.

9. General—Many motor vehicle accidents have been traced directly to a combination of lack of lubrication and of proper tightening or adjustment. Regular lubrication, with the attendant inspection, would prevent such accidents, first, by preventing abnormal wear and breakage, and, second, by calling attention to worn, broken, or improperly functioning parts.

It has been pointed out that while regular and periodic lubrication is essential to safety of both vehicle and occupants, there is necessity also for proper lubrication. The lubrication of motor vehicles has been developed into a specialized undertaking. It requires proper technique, equipment, and lubricants.

The old day of lubricating automotive vehicles by putting lubricant into a grease cup is gone, as is also the possibility of using the same kind of lubricant for all the many and varied working parts. Modern lubrication needs call for the services of trained men and complete equipment, such as is to be found at efficiently-operated fleet service stations. The motor vehicle fleet owner should appreciate this situation and entrust his lubricating requirements, of which he may lack expert knowledge, to men trained and properly equipped for the complicated task of lubricating motor vehicles.

Apparently there is controversy as to the proper period between changes of crankcase oil and gear lubricants, but little or none as to chassis lubrication, or greasing. It has been recommended that each company decide upon its own rec-

(*Please turn to page* 62)

FOR TRUCK, BUS AND TAXI-CAB FLEETS

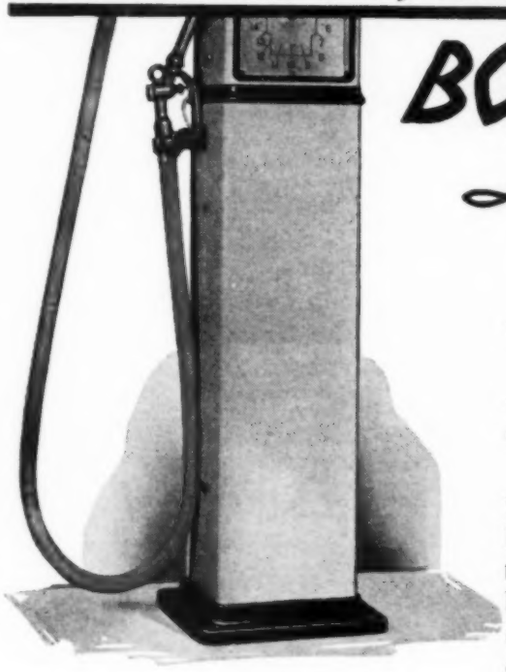


FIGURE 410
Electric Meter Pump for Gasoline

BOWSER Gasoline and Oil Dispensing Equipment

What do you want in your gasoline and oil dispensing equipment? Speed? Accuracy? Convenience? Dependability?

You can have them all, when you choose Bowser—made by the originators and world's oldest manufacturer of measuring equipment.

To meet most needs, there is a wide variety in types and sizes. For dispensing gasoline, there are electric meter pumps, hand operated pumps, pipe line metering systems, remote control metering systems, underground fueling pits, wheel tanks (with hand pump or meter). For oils, there are storage and dispensing units, metering systems, hand operated pumps, portable equipment, and others. OR, if you desire a tailor-made system, Bowser engineers can design and build equipment to meet your individual specifications.

For efficient, dependable dispensing equipment—choose Bowser!

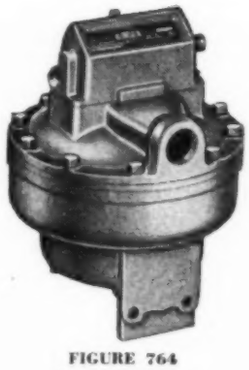


FIGURE 764
Xacto Meter for Gasoline and Oil

Xacto Meter—widely used in filling station pumps and industrial plants, where accuracy is *essential*—is ideally suited for measuring gasoline and oils. It is speedy, accurate, dependable and flexible, enabling it to be used in a variety of ways. Being available in various sizes and types of dials including Recording Printers—it is specially recommended for fleet fueling.

Bowser Storage and Dispensing Units for oil are sturdily constructed, accurate and efficient; can be arranged in battery form with barrel track for quickly and easily draining shipping containers. Can be furnished with quart or gallon pumps or with tanks of 65, 120 or 280 gallon capacities. Pump can be locked and equipped with recorder to show total quantities delivered.

FIGURE 64
Storage and Dispensing Unit for Oils

S. F. BOWSER & COMPANY, INC.
FORT WAYNE, INDIANA, U. S. A.

• NEWS of the TRUCK INDUSTRY •

Barit and Black AMA Directors

TWO new directors have been elected to the board of the Automobile Manufacturers Association. A. E. Barit, president of Hudson, fills the vacancy left by the death of Roy D. Chapin. . . . Robert F. Black, president of White, was elected to fill the place of T. R. Dahl, who resigned.

•

Truck Manufacturers Merge

MERGER of the LeBlond-Schacht Truck Company and the Ahrens-Fox Fire Engine Company was recently announced. . . . This plan brings under one roof two of the oldest automotive companies in the truck industry. . . . The fire engine company will continue as a branch of the truck company, maintaining the Ahrens-Fox name. . . . The present executive personnel will continue, a factory report states.

•

Divco-Twin Truck Company Formed

THE entire stock of the Continental-Divco Company, and the assets of the delivery unit division of Twin Coach, have been purchased and combined in a new organization to be known as "Divco-Twin Truck Company" with headquarters in Detroit, Mich. . . . The consolidation of these two companies, both pioneers in the door-to-door delivery field, will result in a greatly enlarged program of activity in the manufacture of this type of unit. . . . John Nicol is president and general manager of the new company.

•

Variety of Trucks in Production

DODGE announces an unusual variety of commercial vehicles as having been produced by its factory during the past 30 days. Some of the special-purpose bodies mentioned by Joe Burke, director of truck sales, include: Accident-prevention, medical, bus, aviation, baking, brewing, bottling, building materials, milk products, furniture, mortuary, gasoline, oil, roads and streets, ice-cream, advertising, farming, florist, produce, refrigeration, meat-packing, sanitation, trucking and outdoor advertising.

Egyptian Lacquer Moves Offices

EGYPTIAN Lacquer Manufacturing Co. announces the removal of its executive offices to Rockefeller Center. For many years Egyptian has been located at 90 West Street, New York. The need for larger quarters and the trend towards centralization of business activity has prompted Egyptian to locate in "Radio City". . . . They are now located on the 29th floor of the R.K.O. Building, 1270 Sixth Ave., New York City. . . . Congratulations, Egyptian!

•

Five Hundred Bucks per Yard

THIS all-wheel-drive Ford V-8 unit is a Marmon-Herrington creation, to which is attached a new Insley semi-trailer dump-bodied job, having a capacity of 5 cubic yards. . . . In plain figures, the complete unit, including tractor and semi-trailer, weighs slightly more than 8,500 pounds. The gross load is about

25,000 pounds, which means that the unit is capable of hauling practically twice its own weight. . . . The whole business (minus the load) can be bought for less than $2,600 complete. . . . This is only one of the things you missed by not attending the Cleveland Road Show recently. Marmon-Herrington Company, Indianapolis, Ind., will be glad to send full details, if you want them.

•

Jarchow Now IHC Comptroller

INTERNATIONAL Harvester's board of directors recently elected C. E. Jarchow as comptroller, filling the vacancy caused by the recent death of Wm. P. Kelly. . . . Twenty-two years ago Mr. Jarchow entered Harvester service, joining the accounting department staff. Prior to that he had been in the employ of American Steel Foundries. . . . Our best to you, Mr. Jarchow!

New Diesel Data Available

"READ THE RECORD" is the title of a very elaborate 32-page book recently issued by The Cummins Engine Company. . . . In it you will find a wealth of data on actual experiences with Diesel engines in the hands of fleet operators and other users of Diesel power. . . . A limited edition of "*Read the Record*" has been produced, and while copies last, they will be sent to interested fleet operators, free, on request. . . . Address Cummins Engine Company, 1100 Wilson St., Columbus, Ind. . . . And if you mention FLEET OWNER there'll be no doubt as to the source of your inquiry, and no obligation, we promise.

•

A. J. Scaife Joins Autocar

AUTOCAR announces that A. J. Scaife, formerly with The White Company, has joined their engineering staff, to work in association with B. B. Bachman, chief engineer. . . . Thirty-six years in the motor truck industry have given Mr. Scaife a splendid background. He has also been president of the S. A. E. and has served on more than eighty of its committees. . . . Best wishes, Mr. Scaife!

•

White in Black, Says Black

WHITE Motor Company is currently operating on a profitable basis for the first time in five years, according to an announcement made on April 11 by Robt. F. Black, president. . . . Total deliveries of trucks and buses in the first quarter of 1936 were 2,483, as compared with 1,261 units in 1935—an increase of 96½ per cent. . . . Deliveries in March were greater than any single month since 1927. Orders for buses in March were the largest in the Company's history.

•

Keeshin Buys 85 "Cab Forwards"

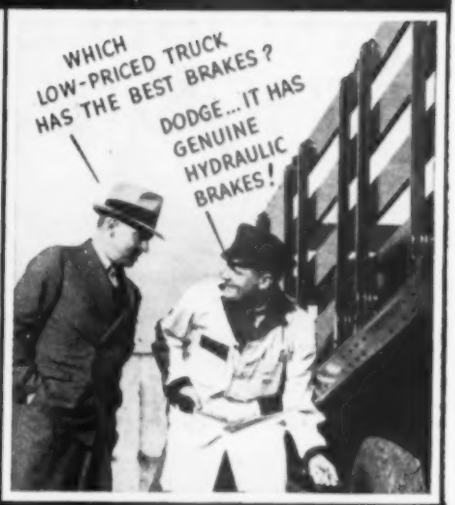
STUDEBAKER announces a recent delivery of 85 new Studebaker "cab forward" trucks to Keeshin Motor Express Co., Inc., Chicago, Ill. . . . The order consisted of twenty-five 1½-2-ton units to be equipped with straight van bodies, and sixty 2-3-ton tractor-trailer units. The tractor units are equipped with deluxe cabs, safety glass all around, heavy-duty generators, 19-plate batteries, extra windshield wipers, domelights, wet-type air cleaners, BK booster brake systems and 8.25 x 20 ten-ply tires.

•

Indestructible Wheel Reorganized

ORGANIZATION of a company which will operate in the manufacturing field under the name of Indestructible Wheel Co., Inc., Lebanon, Ind., was announced recently. A. M. Lofland is president of the new company, which will manufacture metal products, wheels, automobile parts, trailers, etc. The company is equipping also to handle steel wheel changeovers and to do light and heavy repair work, welding and cutting, etc.

BUY YOUR TRUCK THIS WAY...



AND YOU'LL SAVE BIG MONEY

FREE GAS TEST
Clever invention shows how far any truck will go on a gallon of gas. Ask your Dodge dealer to use it FREE!
BURRELL SONS CO
DODGE
Y 6007

NEW DODGE COMMERCIAL PANEL . . . America's handsomest delivery car! Yet gives you all the famous Dodge money-saving features such as genuine hydraulic brakes, safety-steel cab and body, 4 main bearings instead of only 3. Still priced with the lowest... **$585***

NEW DODGE 1½-TON, 6-CYL., 136" W. B. STAKE . . . Has full-floating rear axle, genuine hydraulic brakes, valve seat inserts, roller-bearing universals, 4 piston rings instead of only 3, and many other extra-quality features..... **$690***

* *List prices at factory, Detroit, subject to change without notice. Special equipment, including dual wheels on 1½-ton, extra. Easy terms gladly arranged to fit your budget, at low cost, through Commercial Credit Company.*

COMPARE! Get the facts! Learn for yourself which truck of the lowest-priced three really gives you the most *quality*. That's the smart way to pick a truck if you want it to save money and last a long time.

One good way to get the facts is to ask Dodge owners. Let them tell you how "New Dodge trucks are saving up to $95 a year in gas alone . . . with other surprising big savings on oil, tires and upkeep."

Get a "Show-Down" Score Card

Dodge dealers now offer FREE a little "score card" that shows you another easy way to judge truck quality in the lowest-priced field. Sit down with it for five minutes and you can learn more about all the lowest-priced trucks than you could find out in hours any other way. It shows you exactly what features Dodge has, and exactly what all the others have.

Before you buy any truck, compare Dodge. Make the FREE gas mileage test. Get a "Show-Down" Score Card. Phone or visit your Dodge dealer today!

DODGE

Division of Chrysler Corporation

$370* ½-TON CHASSIS 116" W.B.

Dependable DODGE TRUCKS

The TROUBLE SHOOTER

A department, devoted to correspondence from readers of FLEET OWNER. Any questions having to do with automotive service will be answered in this department. All properly signed inquiries will be replied to by mail and such of them as are believed to be of possible interest to other readers will be published in these columns.

Don't Change V-8's to Diesels

Question: Please advise us where we can obtain information relative to changing the engines in Ford V-8 trucks to Diesel engines, for hauling capacity loads of 1½ to 2 tons.—F. B. C., Thomasville, Ga.

Answer: To our knowledge, there is no automotive Diesel engine in present production that is suitable for installation in your Ford V-8 truck chasses.

Up to the present time, Diesels have not appeared in small enough sizes to replace a 221 cubic-inch engine in any make of truck chassis. We think it would be folly to replace an engine of this size with a Diesel engine of much larger displacement, as this would only place undue stresses on the entire outfit—frame, clutch, transmission, drive-line and rear axle, regardless of the make of truck which you might try to so convert.

As we have advised many other fleet operators who asked us questions similar to yours, please sit tight and wait for the automotive industry to come forward with Diesels in smaller sizes.

When (and if) that does occur, you will be able to tackle the problem with much greater success, and it certainly would seem to be lots easier to purchase a new truck, with a Diesel as standard or optional equipment, than to try to make the conversion yourself.

It will be much cheaper, too, and, considering the problem from all angles, you will no doubt agree that this is the advisable thing to do.

You May Not Believe It!

(But It's True)

THE FACT:

MANY mechanics are under the impression that passenger car brakes should be so adjusted that the same amount of brake pressure is applied equally to all four wheels. This is not proper, however, the correct way being 60% of the braking effect to the front wheels and 40% to the rear wheels.

THE PROOF:

WHILE ordinary judgment might assign the lower braking percentage to the front wheels and the higher percentage to the rear wheels, George B. Allen, chief engineer of the Dodge Division of Chrysler, advises just the opposite. "Should braking effect be distributed on that basis, or even on a 50-50 basis," he says, "the inertia of the forward moving car would tend to slue the rear of the car around on wet or icy roads when a stop is made." Next time you are adjusting hydraulic brakes on your passenger cars, it would be well to bear this advice in mind.

Is It Necessary to Change the Oil?

Question: Would you be so kind as to inform us of your reaction in connection with the use of oil filters? The ——— oil filter is supposed to clean the oil in the crankcase, which eliminates the necessity of changing the oil, except from summer to winter oil. Such are the claims of the representative of this make filter.

We would appreciate very much receiving your comments, as we are particularly interested in the advisability of installing such filters on all of our vehicles.—A. L. L., College Point, N. Y.

Answer: We do not care to either corroborate or refute the claims made by your oil filter representative. Many authorities are responsible for the statement that "oil never wears out."

Therefore, it seems logical that if an oil is kept free from foreign matter, acid, dilution, dirt, grit, carbon, water, etc., it should last for an indefinite period. . . . At any event, IF it is kept free from contaminations of this kind, many fleet men believe that it certainly should last one season. On the other hand, many believe that 2,000 miles is sufficient.

The thing for you to do is to find out whether or not the oil filter which you choose, actually KEEPS THE OIL CLEAN. This can be determined by having analyses made of the used oil, after running in the motor for a specified time, equipped with the oil filter.

We are sending you a summary on Oil Filters which includes the experiences and opinions of 115 fleet operators. This should be exceedingly helpful in answering your question. Should other readers desire a copy of this 6-page mimeographed summary, a line to the Editor will bring a copy, free, gratis and for nothing.

●

Can You Use This Man? (Adv.)

FLEET Superintendent, young enough to be progressive; experienced enough to handle the job; seeks connection with motor truck fleet in the South or Southwest. . . . Familiar with gasoline and electric trucks, light and heavy-duty, having had over 10 years' experience in this business. . . . Can install systems of cost-keeping, preventive maintenance, safety programs, and will crawl under and repair 'em, if necessary. . . . Previous experience with meat products fleet; now connected with brewery fleet. Good knowledge of refrigerated bodies, body building, painting, etc. . . . Health of wife makes change in location imperative. . . . Address The Editor, Desk 507, 90 West Street, New York City, N. Y.

What? A Generator that Shoulders the Battery's Burden?

Yes, sir...and here's what it means to trucks and buses!

IT means that when the engine is running, the Volt-O-matic Generator—*and not the battery*—ALWAYS furnishes all electrical current to lamps, heater, wiper and all current consumers. *Never too little; never too much!*

It means that the life of the battery is infinitely prolonged. First because the battery is used only as a reservoir, to operate the starter and furnish current when the engine is not running. Second because the battery is protected from the costly dangers of overcharging; the expenses resulting from insufficient charging. For remember: the Volt-O-matic Generator feeds the current to the battery, too, precisely in accordance with its needs. *Never too much; never too little!*

It means that, with the battery always in healthy condition and the current consumers fed directly by the Volt-O-matic Generator at full voltage, you are the happy beneficiary of steady, bright lights, safer horns, more efficient ignition, on-the-minute schedules, minimized maintenance.

You take no chances with Volt-O-matic Generators. Hundreds of thousands are in use! Rolling up serviceless mileage records in excess of 100,000 miles! Steadily improved for over 10 years, their trouble-free performance is insured by inherently correct design . . . fine materials . . . conscientious construction and the experience gained by their makers in more than a decade of building voltage regulated generators.

Test Volt-O-matic Generators in actual service—the sure way to prove the hard-to-believe claims we make. Take the first step now—send for new illustrated booklet!

TWO OTHER AUTOMOTIVE ARISTOCRATS

Our Ditch and Fog Light has a triple beam that spreads a semi-circle of safety around the car and under the fog. It's a life-saver to the "highway haunters," the drivers of buses, trucks, taxicabs, police squad cars, etc.

The Neverstall Windshield Wiper is driven by its own electric motor; hence its steady powerful sweep is independent of car speeds. Never falters going up hill or "giving 'er the gas." Ask for full information about these products which appeal to those who want the best performance, greatest endurance and maximum efficiency.

We have always taken pride in creating, designing, building and selling products superior to those commonly in use. Built to a high standard of quality, these products are proven leaders in their fields.

UNITED AMERICAN BOSCH CORPORATION

SPRINGFIELD, MASS. NEW YORK · CHICAGO · DETROIT

Not Advisable to Use Diesels in this Fleet

Question: We have just read an account of the new Diesel engines in the November issue of FLEET OWNER *and would like to get your advice on the following matter.*

We operate a fleet of twenty trucks which are divided up among half-ton, three-quarter-ton, one-ton and one-and-a-quarter-tons capacity. Of these twenty trucks eleven are Reo, five are International, three are Chevrolet and one Ford. Our plant covers a radius of about eighty miles in delivery area, of which one half is mountainous territory. Our trucks average from 1,000 to 3,000 miles every 24 days, and make about 100 stops per day.

We would like to know if you would advise us to use Diesel engines, and if there are any Diesel engines available at present that are interchangeable with our present gasoline engines? If so, what are some of the figures as to economy, speed, maintenance costs, etc.? —W. B. Co., Valdese, N. C.

Answer: Frankly, we would advise you to stick to your gasoline engines for the present. In the first place, to our knowledge, there are no available Diesel engines that will interchange with those you are now using. In fact, there do not seem to be *any* automotive Diesels in present production, that would be small enough to be used in the light trucks you mention.

Even if such engines were available, we doubt very much whether or not they would effect any immediate economies. Such Diesel engines, until they get into volume production, would cost you quite a bit of money, and you would have to operate a great many miles per day in order to realize any tangible fuel economies that would amortize the extra first cost of the Diesels.

It is generally conceded that Diesels are more adaptable to operations that carry heavy loads and operate on long runs, with few stops. In fact, 200 to 250 miles per day seems to be the minimum mileage to get the full benefits of Diesels.

On the other hand, when more Diesels are manufactured, it is likely that costs will be brought down to production levels. When and if that time comes, and Diesels are offered in small, light trucks as standard equipment, there will probably be a different story to tell. For the present, stick to your gasoline engines, is our advice.

●

Nine Ways to Cut Fuel Expense

MILLIONS of dollars in gas and oil expenses would be saved each year if drivers observed nine simple driving practices evolved on the General Motors proving ground by the Pontiac Motor Company, while conducting a series of mileage tests under supervision of B. H. Anibal, vice-president and chief engineer.

That slow driving pays was conclusively shown by the tests, made with eight leading makes of cars priced below $850, each one scientifically checked at every ten-mile speed from twenty to seventy.

At twenty, the best mileage delivered by any of the eight makes was 24 miles to the gallon, while at seventy none of the eight could do better than 13.9, or 56 per cent less, indicating that the seventy-mile driver pays out almost twice as much for gas and oil to cover one mile as does the slower driver.

The lowest mileage delivered by any of the eight cars was 19.7 at twenty miles per hour, and 10.7 at seventy. With the eight cars checked under identical driving conditions, it was found that as between the best and worst, the maximum difference in gasoline and oil costs was fifteen cents per 100 miles of driving, or less than one-sixth of a cent per mile.

The nine practices which the engineers found contributed most to unecessarily high gasoline consumption were: Starting unnecessarily often; driving with choke on; tramping on the accelerator; too much second gear driving; accelerating on hills; fast driving against wind; sustained high speed driving; idling motor; and too fast driving on slippery roads. These practices result in astonishingly large cuts into the gasoline budget.

●

Some Sales-Car Cost Figures

DEAR MR. FISCHER: In the Editor's Column of a recent issue, under the heading of "Salesmen's Cars" you have brought up the question of whether it is cheaper to operate your own salesmen's cars, let the salesmen own them, or to hire them from someone else.

We have purchased cars for our men who travel more than 13,500 miles per year and permit the others to operate their own cars, paying all expenses for such operation and allowing them 4c a mile.

We find we operated our fleet of seventy-one pleasure cars in 1934 at a total cost of $.031259 per mile. This cost includes each item of expense as well as insurance, depreciation, and interest, as indicated by the following breakdown of this cost:

Expenses	Total Cost	Cost per Mile
Gasoline	$13,961.06	$ .010620
Motor Oil	2,063.19	.001569
Grease	738.82	.000562
Tires & Tire Repairs	1,474.05	.001121
Storage	4,836.71	.003679
Washing	283.06	.000215
Labor	1,810.81	.001377
Material	1,227.78	.000934
Batteries	239.97	.000183
Miscellaneous	1,227.97	.000934
Collision Losses	264.68	.000201
Insurance	3,816.64	.002903
Depreciation	7,523.33	.005723
Interest	1,628.06	.001238
Totals	$41,096.13	$ .031259

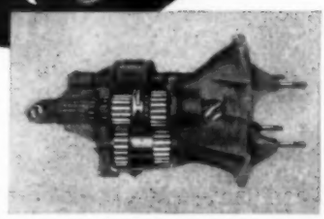
While, as you see, we can operate our cars cheaper than our allowance of 4c a mile to the men using cars personally owned by them in our business, still we are unable to decrease this cost because the men contend that it is impossible to operate their cars at such a low cost. We believe we are handling our problem satisfactorily, at a minimum of cost.

We are interested in this problem of costs and would like to know what other fleet operators are doing in this direction.—*Wm. G. Speed, Jr., Asst. Secy.-Treas., New Amsterdam Casualty Company, Baltimore, Md.*

FULL TIME ON THE JOB

–more profitable ton miles

America's Toughest Truck!



Reo Gold Crown and Silver Crown engines are built *for trucks*. They have pulling power, extra stamina and great flexibility. And they set new records for economy.

Optional (at slight extra cost) is the Reo Two Speed Axle Unit —a money-saver. In combination with the Reo 4-Speed Transmission, driver has 8 speeds at his control!

TOUGH trucks make money—and that's the sort of trucks Reo builds! Trucks that are everlastingly on the job, piling up trouble-free mileage—safe, fast trucks that make more trips per day, more profitable ton miles every month!

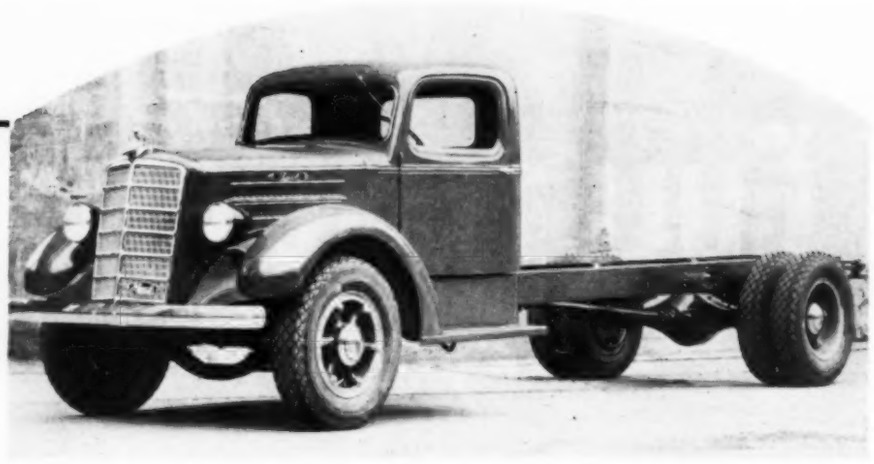
Our engineers designed these new 1936 Reos to "take it" in any going. Built the bulldog chassis to handle peak loads. Improved the famous Reo truck engines—made them "power giants" and "fuel misers". Then styled these new Reos in attractive streamline beauty that is both practical and inexpensive to maintain.

Compare these tough new Reos with other trucks—point for point and dollar value for dollar value. Satisfy yourself that the 1936 models are the most economical, long-lived trucks Reo ever built. Ask your Reo dealer about Reo's Performance Guarantee and Ability Rating Plate which tells you exactly what your truck will do—makes it easy to check the ***extra quality*** built into every Reo truck.

Reo Speedwagons and Trucks range from ½ to 4-6 tons. Prices from $445 up, chassis f. o. b. Lansing, plus tax. *½-Ton Chassis *f. o. b. Lansing, plus tax.*

$445* AND UP

REO SPEEDWAGONS AND TRUCKS



New Model EH Mack *is* Rated *at* 18,000-*lbs.* Gross

MODERN styling comes in for special emphasis on the new Mack Model EH, just announced by Mack Trucks, Inc., New York, N. Y., which rates at 18,000 pounds gross and lists at $2,250 f. o. b. the factory at Allentown, Pa.

Full-faired and creased fender design with high valleys between the hood and fenders; a V'd sloping chromium-plated radiator grille; extensive use of chromium plating on the windshield frame, louvre ornaments, hub caps and bumpers; and de-luxe streamlined cab with sloping windshield are among the features contributing to the pleasing modern appearance of the new model.

For its latest offering Mack has designed entirely new and modernistic hood louvres. Heightening the up-to-the minute appearance of the truck is the manner in which the angle of the hood louvres has been repeated in the sloping radiator grille and windshield.

Of all-metal construction, the cab roof is built integral with the cab. Safety glass all around is standard. Interior cab fittings include dome-light, coat hooks, indirectly-lighted instrument board with clock-type instruments.

The new Model EH is offered in standard wheelbase lengths of 146" and 158" for the truck and 139" for the tractor chassis, with optional wheelbase lengths available at extra cost. Gross weight distribution of approximately 30% front and 70% rear has been achieved through set-back front axle design; the front axle being but 74 inches ahead of the rear of the cab.

The new model is powered by the well-established, six-cylinder Mack Model BG engine with a 3⅝" by 5" bore and stroke, which develops 79 horsepower at a governed speed of 2,300 r. p. m.

Among the features of this engine are case-hardened, fully counterbalanced crankshaft; drop-forged, case-hardened, nickel-steel timing gears with generator-ground helical teeth; Mack Permafit exhaust valve seat inserts of Niferite; Mack Stabl-ite exhaust valves of austenitic steel to prevent distortion at high temperatures: off-set turbulence type combustion chambers which are said to permit high compression without detonation; radiused cylinder bores to prevent cracked cylinders between the bore and the valve deck; and cold-circulation type thermostatic temperature control to promote rapid warming-up of the cylinders.

Drive is from the dry, single-plate clutch through a five-speed, unit-with-engine transmission, with direct-drive in fifth as standard; an overgeared fifth being available at slight extra cost.

Rear axle is of the single-reduction, spiral-bevel type, with double-reduction drive procurable at extra cost. Both are full-floating and employ Hotchkiss drive. The driveshaft has three needle-bearing universal joints with a large self-aligning center bearing. There are six optional ratios on the single-reduction drive, ranging from 4.40 to 7.40; two ratios of 7.35 and 8.21 on the double-reduction drive.

Four-wheel brakes on the new model are of the hydraulic type and are vacuum-booster actuated. Total foot brake area is 370 square inches.

The chassis frame has what is declared to be an exceptional depth of 8½ inches; it is ¼-inch thick and has a 3¼-inch flange. It is staunchly braced by three, pressed steel, deep-flanged box girder cross members with alligator-jaw attachment to the side members, and two channel cross-members.

Suspension of the long, flat, semi-elliptic springs is by means of Mack rubber Shock Insulators. Helper springs are standard equipment.

Bird's-eye view of Mack Model EH chassis, showing box-type, alligator-jaw cross members, tapering running board and creased front fenders. Note also that the cab roof is of the integral-metal type.

There is *one* ignition cable that provides, *in perfect balance,* all the qualities that are required in the grueling service of bus, truck and fleet operation—and *that* cable is PACKARD FOUR-FORTY! With its secret-formula inorganic-base compound sheath, PACKARD FOUR-FORTY offers a new high degree of resistance, not only to heat, but to high-voltage rupture, oil and age as well! PACKARD FOUR-FORTY was designed to outperform and outwear all the previous "bests" in the ignition cable field. And just how well it *does* this can easily be proved *to your own satisfaction.* Install it on your equipment now—learn how it improves performance, cuts operating costs and eliminates one out of every three ignition cable replacements! Order from your jobber. Packard Electric Corporation, Warren, Ohio.

Packard

REG. U. S. PAT. OFF. TRADE MARK

THE STANDARD WIRING EQUIPMENT OF THE AUTOMOTIVE INDUSTRY

LETTERS

TO THE EDITOR

NOTE OF APPRECIATION

● *Dear Mr. Fischer:* We have found your magazine, FLEET OWNER, to be a very interesting and valuable source of information.

Incidentally, for your own records, you may be interested to know that we are now using the products of about one-third of the companies in the Advertiser's Index of your March issue, besides other advertisers who are not in this particular issue.

We have experienced pleasant business relationship with many of your advertisers, through your page of numbered selections, of which we are enclosing a coupon requesting three more at this time.—*T. V. Cryer, Mechanical Dept., Santa Paula Citrus Fruit Association, Santa Paula, Calif.*

●

CAN'T WAIT FOR IT

● *Dear Mr. Fischer:* In the April issue of FLEET OWNER, Mr. Brede of General Motors Truck Company offered a very interesting article on Preventive Maintenance and volunteered to send us samples of the preventive maintenance work sheets referred to therein. We would like to get copies of these, please.

Incidentally, if the May issue of FLEET OWNER comes out a week or two earlier, so that I can read the rest of the article, I won't write you and raise any objections.—*T. A. Williams, Blinn, Morrill Company, Boston, Mass.*

●

SEEKS GOVERNOR INFORMATION

● *To the Editor:* Will you kindly give me the names and addresses of companies selling governors for passenger cars and taxicabs.

We are seeking a governor of the centrifugal type, if possible and would appreciate getting a list of manufacturers.—*Henry W. Buhl, Erie Taxicab Company, Erie, Pa.*

(EDITOR'S NOTE: *A list of governor manufacturers is going forward to you by separate mail.*)

CLICKS IN CANADA

● *To the Editor:* I have recently received copies of your magazine, FLEET OWNER, which I can assure you I appreciate very much. Upon reading same I must say that I have found some very valuable information in it.

I have filled out your questionnaire on page 59 of the April issue, "Cleaning Problems," but I will not forward it to you until I can get your Editor's assurance that this information will be kept strictly confidential.

Incidentally, this questionnaire represents certain ideals which I have been trying to bring about in our own operation, for the past fourteen years. But because of the lack of cooperation at this end I have been unable to do so.—*Municipal Superintendent, Canada. (Anonymous).*

(EDITOR'S NOTE: *.Of course, all replies to our Question-of-the-Month Department are held in strictest confidence. May we again remind other readers of this fact. In order to make sure that we do not print any of your information, it might be a good idea to write the word "Confidential" across the face of each questionnaire that you fill out.—H. C. F.).*

●

BONUS INFORMATION WANTED

● *To the Editor:* We are desirous of setting up a bonus system for our drivers based on the saving in the cost of operation for each truck.

Do you have any record of such a bonus system now in use? We will appreciate any information that either you or your readers care to favor us with.—*G. Ullrich, Viking Freight Company, St. Louis, Mo.*

(EDITOR'S NOTE: *We do not seem to be able to recall any systems of this kind in use at present, although we may have covered the subject in previous issues of this publication. If any of our readers are at present operating a bonus system on the foregoing basis, we'd appreciate it if you would write to Mr. Ullrich, whose address is given above.—H. C. F.*

AN APPRECIATIVE MECHANIC

● *To the Editor:* I have been reading your magazine, FLEET OWNER, for the past nine years and can safely say that I have learned very much by so doing.

I started working for the Truck Service Corporation in 1925 and it was there that I picked up your publication, while waiting for the late trucks to come in at night. From then on, I obtained it from my superior each month, after he had finished reading it. I took these magazines home to read, and when I had a large supply of them, I cut them all apart, sorting out the different articles in them.

There were a few times when I did not receive the book, and I felt that I had missed a lot of very valuable information.—*Harry P. Thompson, 5339 Lindbergh Blvd., Philadelphia, Pa.*

●

RECORDING DEVICE DESIRABLE

● *Dear Mr. Fischer:* May we comment on your editorial which appeared on page 14 of your February issue, with reference to the development of a new recording device that will provide an accurate record of over-speeding by the driver.

In our opinion, such a device would be highly desirable and ought to meet a ready acceptance, providing that it is a small fixture that is easily installed and reasonably priced.

We, ourselves, have often looked for such a device in the advertising pages of FLEET OWNER, which, incidentally, can't be beat.—*A. A. Field, Field Packing Company, Owensboro, Ky.*

●

SEEKS BUS BODY DATA

● *To the Editor:* We are interested in developing some information relative to the construction of bus bodies. Specifically, we would like to know whether the majority of the bus bodies manufactured are of wood or fibre-board construction, or whether the majority are of metal construction, such as steel, aluminum alloy, etc.

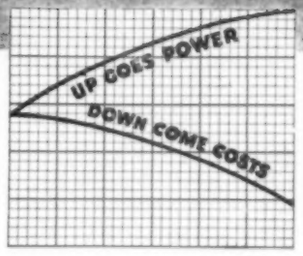
We would like to know, too, whether there is a distinction between those bodies manufactured for buses of the urban type and those of the long-haul or parlor-car type? For example, are the urban type mostly of wood construction and the long-haul type mostly of metal construction, etc?—*J. D. Cheney, Supervising Engineer, Hartford Accident & Indemnity Co., Hartford, Conn.*

(EDITOR'S NOTE: *We are printing the above letter with the thought that many bus body manufacturers will see it and will be prompted to answer your questions, which are, incidentally, a little bit out of our line. H. C. F.).*

Fleet owner changes to Chevrolet trucks because of their great economy

"These 28 Chevrolets are operating at about one-half the expense of the 28 trucks of another make they replaced."

President, Capital Fuel & Feed Co.



CHEVROLET

FOR ECONOMICAL TRANSPORTATION

CAPITAL FUEL & FEED COMPANY of Phoenix, Arizona, operators of a fleet of seventy-five passenger cars and trucks, is one of hundreds of fleet owners that have discovered the money-saving advantages of Chevrolet equipment. Read the following statement by the president of this company, in which he tells of their remarkable experience with Chevrolet equipment, and why Chevrolet will be their choice when new units are added.

"The deciding factor in the purchase (28 Chevrolet trucks) was the record established by one of your Chevrolet cars which we drove over 150,000 miles with the original pistons, and a cost record unsurpassed for economy by any unit in our fleet. The 28 Chevrolet trucks are used for hauling hay, grain, coal and fuel oil in loads up to 4, 5 and 6 tons, over all kinds of roads and conditions. Considering all expenses, these 28 Chevrolets are operating at about one-half the expense of the 28 trucks of another make which they replaced. From here on we propose to use Chevrolets."

Chevrolet trucks are the *world's thriftiest high-powered trucks.* They are the *most economical* of all trucks to maintain, and give the *greatest pulling power* of any trucks in their price range. Get the *facts* on your own haulage or delivery requirements. See your Chevrolet dealer at once.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN

NEW PERFECTED HYDRAULIC BRAKES

always equalized for quick, unswerving, "straight line" stops

NEW FULL-TRIMMED DE LUXE CAB

with clear-vision instrument panel for safe control

NEW HIGH-COMPRESSION VALVE-IN-HEAD ENGINE

with increased horsepower, increased torque, greater economy in gas and oil

FULL-FLOATING REAR AXLE

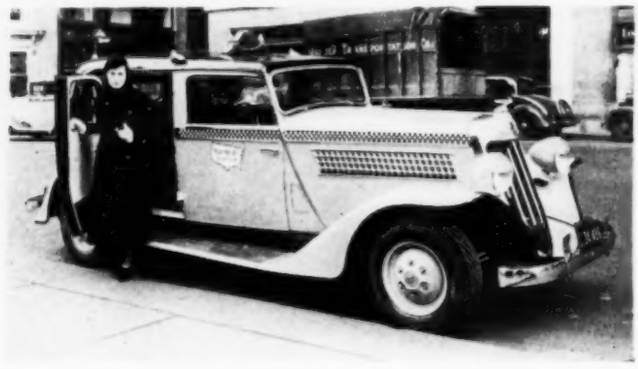
with barrel type wheel bearings on 1½-ton models

GENERAL MOTORS INSTALLMENT PLAN—MONTHLY PAYMENTS TO SUIT YOUR PURSE

CHEVROLET TRUCKS

New Safety Devices on Taxicabs

ONE source of danger to the pedestrian on the streets is the backing up of a car. The new Parmelee System cabs are provided with an automatic buzzer which signals at once when the reverse is engaged, even before the clutch actually moves the car.



To provide greater range of vision through the windshield, the uprights on each side are considerably narrowed, thereby permitting clear vision at all angles. Experience has shown that a double windshield-wiper adds to the driver's, as well as the passenger's vision, and all new cabs are so equipped. To provide for the driver's comfort, the cushion back seat has been made form-fitting.

The doors leading into the passenger's compartment have been made much larger and wider to provide for easier entrance or exit, making it possible for the passenger in a back seat to leave the cab without disturbing those seated on the turn-back seats in front.

All windows in the cab may be quickly opened and the rear window is especially large and easily opened to provide ample ventilation in summer.

To protect the passenger against being injured when precipitated forward by reason of a sudden stop, a wide, thick, sponge-rubber cushion lining has been installed below the compartment window separating the driver and passenger. The cabs are upholstered with real leather and leather guards protect the passenger's fingers from door hinges and apertures.

The modified streamlined body is underslung lower than heretofore. The spare tire is no longer used, experience having shown that puncture-proof tubes minimize flats, and tire changes are the incidental work of the service cars. The radiator cap ornament is carefully designed and distinct from the dangerous spearhead devices thoughtlessly used by so many operators, without realization of the danger when accidentally hitting a pedestrian. The cabs were built by the Checker Cab Manufacturing Company of Kalamazoo, Michigan.

●

Long Life Reported on Stellited Seats

THE use of Stellite-faced valve-seats—a fairly recent development — is bringing in some interesting reports.

One operator, whose heavy-duty trucks run between New York City and Scranton, Pa., a distance of about 150 miles, reports a saving of 14 gallons of gasoline per round trip, which he credits to the use of Stellited exhaust valve-seats, we are told.

Another operator, whose passenger buses operate between New York City and Pittsburgh, Pa., formerly adjusted the valves after each round trip, and reground valves at least every 10,000 to 20,000 miles, scrapping the cylinder head at the end of 75,000 to 100,000 miles.

After installing cylinder heads with hard-surfaced seats, he found it necessary to adjust the valve-tappets only once in the first 100,000 miles, and no regrinding was required. In addition to this, there was a considerable saving in oil and gasoline, due to the more efficient operation of the engine. This particular motor had overhead valves, of course.

●

Dodge Offers Retail Delivery Unit

ONE of the latest offerings of Dodge Trucks, for the bakery and dairy fields, is another type of low-priced retail delivery truck mounted on a regular one-ton chassis shortened to 112-inch wheelbase for easy parking and short turning radius. This has recently been announced by J. D. Burke, director of truck sales of the Dodge Division of Chrysler Corporation, Detroit, Mich.

This new truck has a one-step entrance. The floor at the side of the driver's seat is lowered and fastened directly to the chassis frame to form the single step entrance. This arrangement eliminates the necessity for special drop section in the frame, a factor which contributes materially to the low price of this model, we are told.

Among the several other features of this truck is the swivel type of single seat which permits the driver to turn in the direction of exit and quickly step onto the curb with a minimum of effort. When desired, the seat may be locked in forward driving position.

Body capacity is 42 standard milk cases, or 112 cubic feet. Floor space between wheel pockets takes six cases, two wide and three deep. Second, third and fourth tiers hold 12 cases each. Body side doors are "jack-knife" type, folding into recesses in either side of the body and can be locked in open position by the door handles.

Rear doors open to the width of two milk cases and when opened do not extend beyond outside width of body. Special patented locking devices hold doors when opened. Doors secured in this manner allow the truck to be backed up to loading platform without risk of door breakage. . . . For further details write to Joe Burke (address above) mentioning FLEET OWNER, if you please.

BACKED BY A HALF A CENTURY OF GLASS MAKING EXPERIENCE

AN important fact to remember about Duplate Safety Glass is this: it is manufactured by the Pittsburgh Plate Glass Company. This Company has been making glass for more than half a century. Its experience in every phase of glass manufacture over that period has equipped it with an understanding of materials and methods unequalled in the field. And what could be better assurance than that of the economical and efficient service you can expect from Duplate Safety Glass?

Whether ordering new equipment or replacing glass in old, you will find your interests . . . and the safety of your passengers . . . best served by asking for Duplate. Your nearest Duplate dealer, listed in the "Where to Buy It" section of your telephone book, will gladly give you complete information and prices on replacement. And if you find it necessary to purchase a lower-priced safety glass than Duplate, ask him to supply you with Duolite, the Safety Pennvernon Glass. Pittsburgh Plate Glass Company, Grant Building, Pittsburgh, Penna.

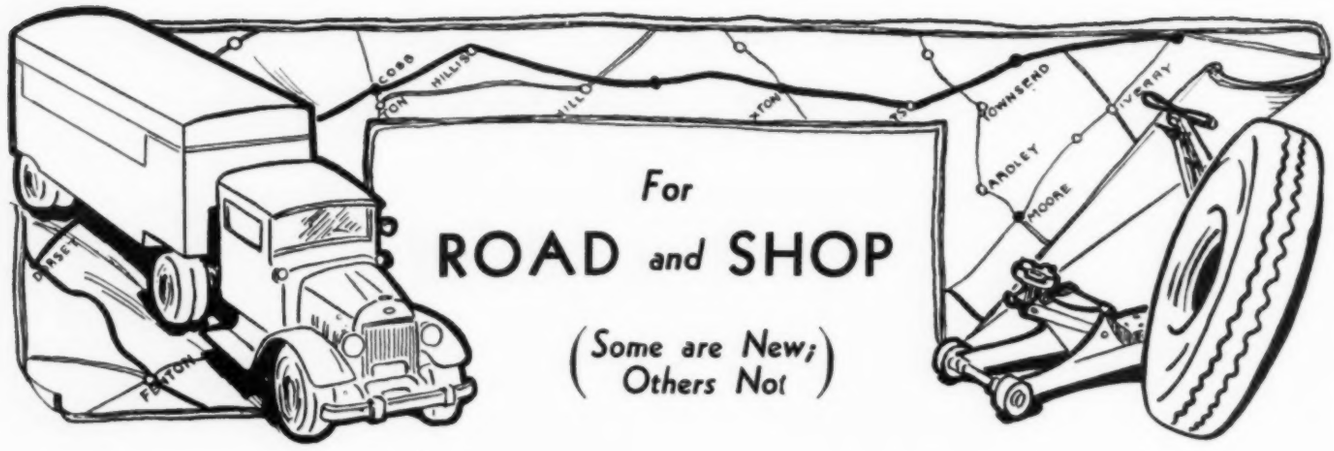
. . .

Listen to "The Music You Love", superbly rendered by the Pittsburgh Symphony Orchestra and distinguished guest artists every Thursday at 8:00 P. M., E. D. S. T., over NBC-WJZ Network and associated stations.

Duplate Safety

A PRODUCT OF

Paint { PITTSBURGH PLATE GLASS COMPANY } Glass

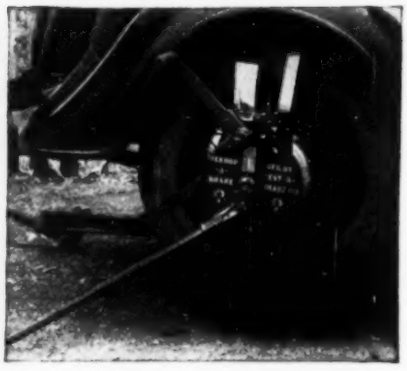


For ROAD and SHOP

(Some are New; Others Not)

"Rekord-A-Brake"

THIS is a new, low-priced brake-testing unit that tests each wheel separately and accurately, and gives a written test record to prove it, according to the manufacturers who have just announced it.



The "Rekord-A-Brake" as it is called, measures brake resistance, indicates high spots on drums or lining, and produces a signed, dated test record on a gummed windshield sticker.

It will fit any type or size tire, the makers state; it's portable, weighing only 35 pounds. There are no easily breakable or wearable parts. For further details and interesting circular address Test-A-Brake Company, Alliance Life Bldg., Peoria, Ill. . . . Mention of FLEET OWNER always helps.

•

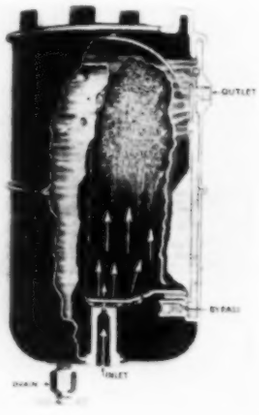
New Handy Oil Conditioner

A NEW oil filtering system incorporating an important development in filtering material is announced by the Handy Governor Corporation of Detroit, Mich. The new unit is applicable to cars, trucks, buses, taxicabs as well as marine and stationary installations. It will be marketed as the Handy Oil Conditioner.

The manufacturers point out that this device not only removes foreign material from the oil but maintains it in its state of original cleanliness, even preserving the color of the oil after thousands of miles of use, due to the use of a new purifying element known as "Percolite," an exclusive impregnated fibrous compound developed by Handy.

Oil passing through this material returns to the crankcase in its original new condition; acid is neutralized; abrasives and other foreign material are removed; sludge is eliminated; water is trapped; materials which discolor the oil, such as colloidal carbon, are also taken out, the makers claim. As a result of the treatment received by the oil passing through the Percolite purifying element, tests after thousands of miles of use show the oil to have its original color, consistency and lubricating quality, according to factory officials.

The new Handy oil conditioner can be installed on vehicles already in use as well as for original equipment. Ordinarily the chamber containing the filtering elements, which is assembled in the form of a cartridge, is mounted on the forward side of the dash. The oil is passed through on its return to the crankcase, entering the inlet at the botom of the unit and passing upward through a screened receptacle or cartridge which contains the Percolite purifying element.



While Handy does not specify an exact period of time or mileage for the replacement of the cartridge, tests have been made up to 10,000 and 12,000 miles which indicated the oil in the crankcase to be in perfect condition. It is recognized that with older engines having a considerable amount of blow-by, or when inferior oil is used initially, or with other conditions which tend to affect the situation, that the time and mileage between filter cartridge changes will vary.

The new device is now being tested experimentally on fleets and will be available for all types of gasoline-operated engines with pressure oiling systems. . . . For further information address Handy Governor Corporation, Detroit, Mich. . . . Mention of FLEET OWNER helps.

•

Remote Control Valve

THE new Lathan-Besler power-brake remote control valve, illustrated here, permits air-suspended power-brakes on trailers to be operated in conjunction with vacuum-suspended power brakes on tractors, and vice-versa.

This valve, it is claimed, will also automatically stop the trailer, in case of a break-away. The positive-seal, poppet-type design is said to prevent pressure-loss through leak-off, thus assuring maximum speed of application and the maximum of braking power with any given power chamber.

The balance feature automatically synchronizes the power application to correspond with the operating valve movement, and maintains any brake application until released or increased, it is claimed. An efficient air-cleaner is built into this valve.

This and many other new power-brake control valves and units are completely described in the new 1936 Lathan-Besler power-brake manual, now being distributed free to readers of this publication. When writing to

The Lathan Company, Inc., Polk & Pine Sts., San Francisco, Calif., for your free copy, mention of FLEET OWNER will be appreciated. . . . Or, you may write to the company at 477 Selden Ave., Detroit, Mich.

UTILITY TRAILERS

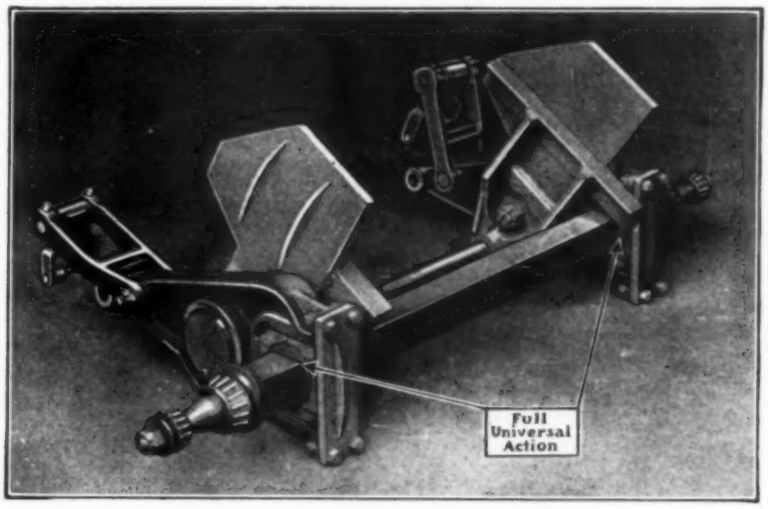
Mr. Trailer Manufacturer!

Why not add Six Wheel Attachments (Truck Third Axles) to your line, since they are "right up your alley"?

You have your own wheels, tires, hubs, brakes, etc., and we'll furnish you with the "Utility" patented attachment axle assembly as illustrated below, except with the axle left square at both ends for you to machine to fit your own hubs and bearings.

Many trailer manufacturers are increasing their sales by including the manufacture of truck third axles and by taking advantage of our proposition. Write for full details.

Valuable territory with exclusive rights available. Complete stock carried in New York City for quick eastern deliveries.



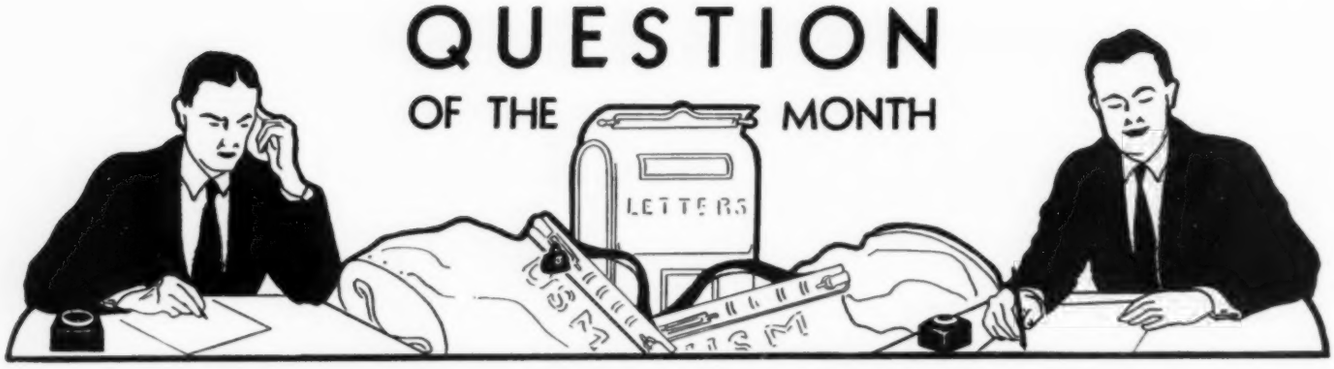
Fully covered by Pioneer U. S. Patents

Utility Trailer Manufacturing Company

P. O. Box 1407 Arcade Annex, Los Angeles, Calif.

Cable Address **"UTILITY"**

QUESTION OF THE MONTH



A FEW REPLIES TO THE CLEANING QUESTIONNAIRE (No. 67):

Uses Various Cleaning Methods

By L. McInerny, Supt.,
San Antonio Public Service Co., San Antonio, Texas.

VARIOUS methods are used in taking care of cleaning problems in our fleet of 195 buses. Engines, axles and units are done by hand-cleaning with coal-oil; also vat-cleaning with steam pressure, cleaning powder solution and water. Our engines are cleaned by these various methods at intervals of 16,000 miles. Garage floors are cleaned by hand-scraping, using steel scrapers.

Our shop is at present equipped with parts-cleaning tanks and steam-operated cleaning equipment. In our opinion, prepared compounds to mix with water, constitute the best material for cleaning purposes in general fleet work. We use about one barrel per month. One of our problems has to do with eliminating fumes, when cleaning in vats.

•

Powdered Compounds for Floors

By "Anonymous"
(Who Operates 95 Trucks)
Brooklyn, N. Y.

ALL of our parts are cleaned before they are installed on the vehicles. We use gasoline to wash all bearings, because, in our opinion, it is the best and quickest way to remove any grease; and then too, it dries up faster than any other solution that we know of.

For cleaning engines, kerosene is very good. We use the following method: Warm up engine; then disconnect the ground cable from the battery. Take kerosene and brush and wash off the grease; then flush it off with a water hose and finally use the air-hose to blow off the water. It is better to inhale a few fumes from kerosene than from gasoline. Our engines are only washed when they are overhauled—about every 7 months.

We find that for cleaning garage floors, using a powdered compound to mix with water is as good as you can do. This particular one has a "pine" odor and it does not eat holes in the men's hands. When the floor dries, it does not leave white spots if it is rinsed off properly.

•

Likes Soluble Oil Cleaners

By V. C. Blais, Supt. Trans.,
The New England Bakery, Pawtucket, R. I.

CHEMICAL preparations that are mixed with kerosene or light fuel-oil seem to dissolve any greasy substances and will emulsify when mixed with water.

From our experience, garage floors, motors, machinery, motor parts, greasy or filmy painted surfaces, etc., when thoroughly scrubbed with such a mixture, become as clean and free of oil film as when new.

We have used such methods for three years and are finding new uses for them every day. We use about 10 gallons of this material per month, for our fleet of 50 trucks and 10 passenger cars.

•

Uses Solvent Cleaning Tank

By E. L. Rodman, Trans. Supt.,
N. Y. State Elec. & Gas Corporation, Binghamton, N. Y.

WE are using one of the new-type, patented parts-cleaning tanks for cleaning engines, axles and other parts which can be dipped. This tank cleans by vapor, heated by an electric unit.

Chassis and running gear are cleaned before making repairs, using gasoline and wire brush and then flushing off with water. Our engines are cleaned at 6-month intervals, using an oil-soluble liquid, mixed with kerosene.

Garage floors are swept every day and the oil spots are cleaned by scrubbing with a powdered cleaner, dissolved in water; the latter operation is done every two weeks.

Our equipment for cleaning includes the above-mentioned parts cleaning tank, air-operated cleaning equipment, etc. We use about 25 gallons of the liquid cleaner, and about 50 pounds of the powdered cleaner per month for our fleet of 200 vehicles.

Uses Soap, Oil, Powder, etc.

By G. C. Robertson, Supt.
Griffith-Consumers Company, Washington, D. C.

BEFORE assigning a unit to the shop, it is thoroughly cleaned with our high-pressure washer and our own solution of soap and oil. Chassis and running gear are similarly cleaned before making repairs or adjustments.

Engines are cleaned every month, using the same high-pressure washer and solution. Floors are cleaned by scraping only.

Our cleaning equipment consists of the high-pressure washer, solution mixing barrels and air-operated cleaning equipment. In our opinion powdered compounds to mix with water; also solid and liquid soaps, are best for all-around cleaning in fleets. We use about ⅓ drum of soap per month, and about 100 pounds of the powdered cleaning compound.

One of our particular problems is this. On oil trucks, especially those handling hot oil, it is very difficult to keep them clean without destroying the paint and the lettering. The signs seem to go first. We operate a fleet of 99 trucks and 26 passenger cars.

•

Uses Steam-Cleaning Method

By J. N. Ritter, Supt. Maint.,
Pacific Motor Trucking Company, San Francisco, Calif.

ENGINES, axles and other parts are cleaned before overhauling, using the steam-cleaning method. Chassis and running gear are also cleaned by this method, the work being done by an outside steam-cleaner. We also have our engines cleaned in this manner, at least once a year.

This cleaning is done with a steam-cleaner and soap solution, and then rinsed with clear water. In our opinion, patented liquid solvents and solid or liquid soaps, applied by the steam-cleaning method, are the ideal ways to clean up general conditions found in fleets. We operate a fleet of 106 trucks, 48 tractors, 86 trailers, 2 passenger cars and 25 other vehicles.

What Method of Cylinder Reconditioning is Best for Fleets?

(Here's How You Can Get the Complete Picture on this Controversial Subject:)

OUR findings on *"Cylinder Reconditioning Among Fleets"* are going to make valuable reference data for all-around use. And we know that you will appreciate this information, particularly since it will be based strictly on Experience!

The questionnaire which appears on this page is the *first step!* In order to receive the complete data which this questionnaire will bring, it is necessary that you participate in our survey, by tearing out the blank, filling in the answers to as many questions as you can (or as you care to) and mailing it in to Editor Fischer.

There are no other "rules". . . . But in order to give us enough data to work with, it is necessary that we receive a *representative* number of replies. And for this reason, we are again urging you to participate in this valuable department.

The questionnaire which appears below is the only logical means that we can employ to gather the necessary data from all sections of the country at one time. We don't especially enjoy burdening you with questionnaires. Nobody likes them.

But rather than pass on to you the products of Editor's imaginations (and they sometimes are highly imaginative), isn't it much better to pass back to you the data gained from *actual experience* in the field?

Now you know it is, so why not participate in this questionnaire today! . . . . In return for a few minutes of your time, you'll get a private, personal copy of the summary to all of the returns. And no names will be mentioned in it. . . . Thanks a lot for your cooperation.—H. C. F.

(Please tear out and mail to The Editor, The Fleet Owner, 90 West St., New York City)

Question No. 68—Cylinder Reconditioning

Do you recondition cylinders in your own shop?..... Or, do you farm-out this work?.....

If farmed out, what type of firm does this work for you? (Please check below)

- ☐ Cylinder Grinding Company — Others? .....
- ☐ Automotive Jobber .....
- ☐ Vehicle Dealer or Truck Branch .....
- ☐ Traveling Mechanic .....
- ☐ Garage or Independent Shop .....

What method (and machine) is used to recondition your cylinders? (Please indicate below)

- ☐ Stationary Type Cylinder Grinder; Make?.....
- ☐ Portable Power-Operated Boring Bar; Make?.....
- ☐ Hand-Operated Boring Bar or Reamer; Make?.....
- ☐ Cylinder Hone ONLY; Make?.....

If a boring-bar is used, does it have multiple blades?..... Single Blade? ..... Hone attachment? .....

If a portable boring-bar is used, do you use a hone for the finishing operation? .....

If cylinders are reconditioned in your own shop, what is your average reboring cost per hole? .....

If you farm-out this work, what is your average reboring cost per hole? .....

If you do your own, does one man in your shop specialize?..... Or do ANY of your men do it?.....

What method is used to keep grindings, cuttings, etc., from getting into bearings, etc.? .....

.....

If more than one method is used to recondition your cylinders, which method is used mostly on your engines?

.....

In your opinion, which method of cylinder reconditioning is the best? .....

Which MAKE of reconditioning equipment do you consider best? (Confidential) .....

What is your usual (average) mileage between cylinder reconditionings? .....

What mileage do you get from reconditioned cylinders? (Please indicate below)

☐ Same as from new engine; ☐ More than from new engine; ☐ Less than from new engine.

How many vehicles in your fleet? (Please indicate below)

Trucks ..... Tractors..... Trailers..... Pass. Cars..... Buses ..... Miscellaneous.....

***Note:** If you cooperate with us and fill out this questionnaire, you will be entitled to a tabulated report covering all of the answers.*

Swap your Maintenance experience with other fleet operators in this easy, convenient way. We do the work. You get the benefit.

Name of Firm .....

Address .....

City and State .....

Your Name .....*Position*.....

THE EDITOR RECOMMENDS--

WE know it's a tough job to wade through all of the trade literature that comes to your desk. In order to save time, we've gone through a batch of current stuff and picked out the following, which we believe will interest most fleet operators . . . . Any or all of them may be obtained by sending the coupon to us, properly marked. You have our assurance that this will not obligate you in any way.—H. C. F.

275. LAMP REPLACEMENTS. . . . Every fleet has to make them. Sometimes as a result of accidents; sometimes they just wear out. The old-timers will remember the name "Dietz" from the horse-and-wagon days. And who has not used a Dietz lantern? . . . . Like other progressive concerns, Dietz has kept in step with the times and is now offering a complete line of electric headlamps, stop-and-tail lights, fog-lights, search-lights, marker-lamps, mirrors, direction-signals and flares. . . . They have just issued a complete catalog, which also covers replacement parts for lamps. . . . This might be a good opportunity for you to check up on the prices you are now paying. Anyway, the catalog is interesting and should be in your files. . . . Number 275 on the coupon below, brings a copy, promptly, via the mailman.

•

276. ELECTRIC WELDING seems to be growing in popularity as a method of repairing and salvaging, we are told. . . . We have been asked to include literature covering electric welding equipment in this department. In fact, two different manufacturers have requested this, and several fleet operators have asked for it. . . . If you previously have entertained the impression that electric welding is something that can only be done by specialists, you'll be quite surprised to learn that this is not the case. . . . The literature which you will obtain (by placing Number 276 on the coupon below) will probably convince you; besides it will give you an opportunity to brush up on the subject. No obligation, of course.

•

277. POWER BRAKES ARE HERE. Don't be fooled! The day is not far off when *every* truck will be equipped with power brakes, mandatory or voluntarily. . . . Out on the Pacific Coast they have been working on power brakes for a long time. One of the pioneers out there (Besler, if you must know) has recently issued a complete power brake manual, showing how you can install power brakes on *any* vehicle, with a minimum of expense, fittings and alterations. . . . This new catalog will prove interesting, even if you aren't thinking about doing it today. . . . Number 277 brings a copy promptly.

•

278. HOW TO BRONZE-WELD. . . . Some people call it "brazing", but the correct name for it is bronze-welding—that process which uses bronze welding-rod for making joints and building up surfaces. . . . If you'd like to read, in plain language, a book that gives some very good advice on the subject, and tells where and when this money-saving process can be used in automotive and other work, just include Number 278 on the coupon below. . . . The book will be mailed to you promptly. We guarantee that there's no advertising in it and that it's full of "meaty" shop information.

•

279. WHAT! NO UNIFORMS? . . . The trend is unmistakably towards some kind of uniform dress for drivers of trucks and buses in *any* kind of a fleet. . . . Since summer is "just around the corner" and since uniforms constitute one of your best advertisements, may we include this month, some interesting catalogs on driver's uniforms for summer use. . . . These, of course, are the inexpensive kind—made of durable cotton fabrics that will stand many a laundering. Samples of the actual materials used are included in these catalogs, together with prices and styles. . . . If you'd like to have them mailed to you, let us know by including Number 279 on the coupon. . . . It won't cost you a dime, and you won't be obligated, either.

•

280. OAKITE NEWS SERVICE. Here's an interesting little magazine that you can obtain every month, without subscribing to it. . . . Oakite will be glad to put your name on their fleet list, if you say so. Remember, it's *not* a catalog, but is a *magazine*, containing articles on many subjects and telling how various industries solve their cleaning problems. There's always something in it of interest to the *automotive* man, so it should be worth your while to read it every month. . . . Tell us that you want to be put on the "free" list, by mentioning Number 280 on the coupon below. We'll do the rest and it won't cost you a cent.

•

281. THE TRUTH ABOUT TIRES. . . . That's the title of an interesting booklet which tells, among other things, how to avoid the more expensive tire troubles on trucks, buses and heavy-duty vehicles. . . . General issues this book and we are arranging free distribution in this department, without obligation. . . . If you'd like to get a copy, indicate your desire by placing Number 281 on the coupon. . . . It comes by *mail*, of course.

•

282. TRUE BRAKING ECONOMY? . . . That's what every fleet man wants and a *selective* type of brake service claims to be the answer. . . . With a complete line of friction materials and warehouse stocks conveniently located, this manufacturer believes he can give it to you. . . . He'll gladly send you a complete set of literature, covering compressed-fabric type and full-moulded linings in rolls or sets, curved shoes or brake blocks, and also clutch facings in moulded, woven and heavy-duty types. . . . We know you have heard many brake lining stories before, but if you have not heard American Brakeblok's, you might be interested in at least getting a set of their literature, which comes free for the asking—that is, if you mention Number 282.

•

283. TWO TRUCKS IN ONE? . . . That's what they tell us, when your vehicles are equipped with 2-speed axles. . . . A new booklet which explains the many distinct advantages of 2-speed axles has just been issued. In it, Eaton tries to prove why they really make "two trucks in one" and shows how you can have a gear for every road and load. . . . Free copies are now being mailed out. Get on the list by including Number 283 on our coupon.

•

284. AUTOMOTIVE CLEANING HANDBOOK. . . . This is truly a *handbook*, containing 48 pages of illustrated advice, telling how others clean cement floors, wash cars and trucks, strip paint, clean parts and many other operations. . . . If your cleaning problems have really been *problems*, it will pay you to read this book. . . . If not, you'll find it of interest, anyway. Number 284 brings a copy, free of all obligation.

The Editor, FLEET OWNER, ... 1936
90 West St., New York, N. Y.

Kindly send me without cost or obligation the following literature mentioned in the May issue. (Order by number)

....

....

Name of Fleet .....

Address .....

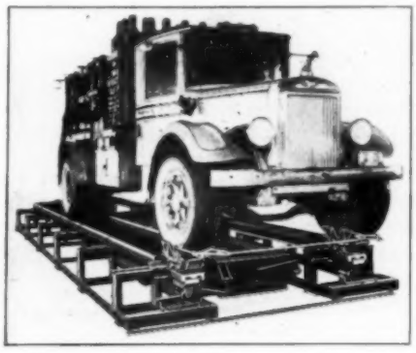
City and State .....

Your Name ..... Position .....

Number of Vehicles Operated .....

Heavy-Duty Aligner

A NEW piece of heavy-duty wheel and axle alignment equipment is introduced under the well-known "Bee-Line" trade mark. The new unit has been especially designed for servicing trucks, trailers, buses and all other commercial vehicles. It will also handle passenger cars.



The "Super Model," as it is called, is illustrated here. It is equipped with turning aligning gauges which will handle from 3½-inch to 12½-inch tires. Center-to-center distance of the turning aligners is adjustable, from 52-inch to 78-inch tread.

Runways are of the sectional type and can be lowered so as to permit accessibility to any part of the chassis. They are also adjustable to accommodate different tread widths.

The press provided for straightening operations is an independent unit of the full-universal, hydraulic type. Press beams are equipped with 8-inch "H" beam members having a large safety factor. Four cross beams are used for side bends. These beams are fully roller-mounted to minimize friction. Diamond-pull equipment is also provided.

Many parts and attachments on this new equipment are made from super-strength alloy steels, the makers point out. . . . For full details address The Bee-Line Manufacturing Co., Davenport, Iowa. . . . Mention of FLEET OWNER always helps.

•

New Cutting Attachment

A NEW oxy-acetylene cutting attachment known as the Oxweld Type CW-22 has been announced recently by The Linde Air Products Company, 30 East 42nd Street, New York, N. Y. This new cutting attachment incorporates features of design and possesses a range and quality of performance, which permit it to handle light sheet metal as well as all but the heaviest work at speeds and efficiency equal to those of the full size cutting blowpipe. The attachment operates on low-pressure or medium-pressure acetylene, with equally satisfactory results.

The Type CW-22 cutting attachment can be used on either the Oxweld Type W-17 or W-22 welding blowpipe handle, thereby greatly extending the utility of these two popular blowpipes.

Sturdy, smooth operation at all times and all pressures is given by the new streamline injector and by the improved type cutting valve, with removable seat, centralized under the cutting lever, it is claimed. The mixed gas passage is formed by three Ambrac tubes. The length, and four 90-deg. changes of direction, afforded by this type of construction give exceptional flashback resistance. The body and head of the CW-22 are designed to combine strength and lightness, the body being of pressure-forged bronze while the head is a manganese bronze forging.

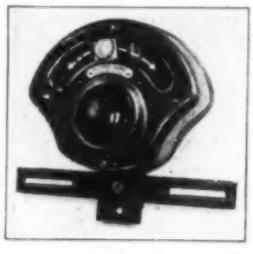
For further details address Linde Air Products Co., 205 E. 42nd St., New York City, N. Y. . . . Mention of FLEET OWNER always helps.

•

"Dua-Saf" Stop Signal

THIS combination tail-light and swinging stop-light was especially designed for application to trucks, trailers, buses and other commercial vehicles.

It is easily installed without the necessity for special tools and is electrically operated. No rearranging of wiring is necessary and no more current is consumed, it is claimed, than that now used by present stop-and-tail lights.



The light is fully enclosed and is dust and waterproof. The front cover may easily be removed for cleaning or inspection. As shown in the accompanying picture, the stop-signal moves back and forth in the sector provided, giving a "wig-wag" or moving light effect.

Complete details and an interesting circular may be obtained by addressing Safety Signal Devices, Inc., 5045 Broadway, Chicago, Ill. . . . Mention of FLEET OWNER will bring you, in addition, a fleet discount quotation.

•

FWD Safety Booklet

SAFETY is the theme of a 24-page illustrated booklet recently published by the Four Wheel Drive Auto Company, Clintonville, Wis.

In vivid color and graphic detail, a story of automotive safety is brought to the reader. Statistics regarding 1935 highway accidents and causes of such are shown in a clear and forceful manner. Safety advantages of FWD trucks for all types of hauling are also brought out.

Fleet operators may secure free copies by writing to the above address. . . . Mention of FLEET OWNER sometimes helps to speed up the service.

A New Hypressure Jenny

THE Homestead Valve Manufacturing Company, Coraopolis, Pa., who for several years has been manufacturing high-pressure vapor-spray cleaning equipment under the trade name of "Hypressure Jenny," announces a new low-priced cleaning outfit.

This new unit, known as Model G, is operated on the same principle as previous models. Cleaning is accomplished by means of applying through a nozzle to the surfaces to be cleaned, a combination of water vapor, hot water and cleaning chemicals, over a pressure range from 50 to 150 pounds.

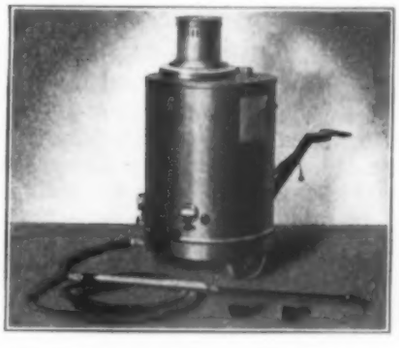
The unit is self-contained, carrying water, solution and oil tanks, oil burner, vapor generator, water and solution pump, electric motor and a specially-constructed vapor hose with a variety of shaped nozzles.

Vapor-pressure is developed by means of a vertical-spiral-parallel-coil type vapor generator, and is controlled by an automatic pressure-control switch. The vaporizing oil-burning system burns standard kerosene or light furnace oil. Pilot flame is started by manual ignition, but is retained automatically after starting.

Both temperature and pressure are held within narrow limits of variation. Safety valve and full nozzle control give the operator full command of the spray and eliminate all danger of damage and injury to the generator or operator, the makers point out.

A saturation-selector enables the operator to change the spray and have a wetter or dryer vapor as needed to obtain the proper operating effect. Paint thus may be stripped by using very hot water containing a suitable stripping compound; or by adjusting the spray and pressure, tar or very heavy grease may be blasted off.

Model G Jenny is made in both stationary and portable types. The stationary unit is mounted on a platform with legs which allow it to be raised several inches above the floor; suitable means are provided for bolting the platform to the floor or other surface on which it is to be set up.



The portable unit is mounted on a truck with 10-inch diameter semi-steel roller bearing wheels, 2½ inches wide. Solid rubber-tired wheels are also provided.

For further details address Homestead Valve Company, Coraoplis, Pa. You'll mention FLEET OWNER when writing, won't you?

Sludge—What Is It?

(*Continued from page* 36)

black, slimy, gelatinous masses greatly impair circulation of the oil in the lubricating system, stopping up suction lines, leads and drillings, clogging up filters, covering oil screens, and, where splash systems are employed, preventing the oil from atomizing completely when thrown up by connecting rod dip.

In winter, the water which has found its way into the crankcase from condensation of water vapor in the air or produced as a result of combustion, may freeze and solidify the sludge-emulsion so that immediate circulation during the starting period is impossible. Under such conditions, cylinder scoring and bearing failure is most likely to follow.

To prevent the formation of detrimental sludge-emulsions during the winter period, the following steps should be taken:

1. In cold weather, see that units are protected from low temperature operating conditions insofar as possible. (Water jacket temperatures should be held above 150 degrees F.)

2. Drain the crankcase frequently and regularly as a precautionary measure to get rid of foreign material such as gritty dust, minute metal particles, gasoline dilution, water and all other contaminating substances which tend to form sludge-emulsions.

●

Analyzing 1935's Accident Figures

(*Continued from page* 38)

other group. Of these pedestrians, about 23 per cent were under fifteen years of age, and 22 per cent were over sixty-five years of age.

The 20,000 deaths to others than pedestrians were due to collisions of many kinds—a shameful record indeed, but hardly comparable to the rampant running down of innocent pedestrians, of whom 23 per cent were children.

"Accidents resulting in persons killed and injured increased last year at about the same rate as car registrations. The total registrations of all motor vehicles was 26,000,000, of which nearly 22,500,000 were passenger cars. That figure represents 71 per cent of the world's motor cars."

Effort to check the continuous annual increase in killings, permanent disabilities, painful injuries, and the useless destruction of property is becoming more widespread and more aggressive, the survey finds.

●

Cutting Costs in a Laundry Fleet

(*Continued from page* 20)

trucks are provided with single front seats; loading and unloading from the front are thus facilitated and time accordingly is saved by the drivers. A rack is provided in each truck for the transport of dry-cleaned garments.

The predominating color of the delivery trucks is a very striking Chinese jade and for contrast, the belt line is orange. The lettering is of modified modernistic type and is black with orange shading. The name "Morgan" in big letters dominates each panel and is quickly discerned by people in the street, particularly by newcomers in the district served by the laundry. Lots of favorable comment on the attractiveness of these new trucks has been received by Morgan Brothers. The trucks are, in fact, great attention-getters and as such, are the best advertising mediums possessed by the concern.

When the Morgan Brothers Laundry of Westmont, N. J., (a suburb of Camden) was first started in 1921, only one delivery truck was utilized. The delivery fleet of this enterprising concern now consists of eighteen attractively finished motor trucks. Organized first as a partnership, the concern was incorporated in 1926 as Morgan Brothers Laundry, Inc., with George T. Morgan president and H. D. Morgan secretary and treasurer. Prior to the organization of the business the two heads of the firm were salesmen, George T. Morgan having been with a big steel company and M. D. Morgan with a big tobocco concern.

●

Let's Lubricate for Safety

(*Continued from page* 42)

ommendations as to whether crankcase oil should be changed each 1,000 miles of car operation, each month, or according to some other basis of calculation. Manufacturers of motor vehicles themselves make various recommendations.

Thought has developed that all ends and interests best would be served by advising motor vehicle operators to bring their vehicles in for checking and lubrication each 1,000 miles, or every month, whichever occurs first, and that decision as to need for lubrication of any nature be made with the advice of the lubrication specialists of reliable petroleum marketers.

Manufacturers are building safety into modern vehicles, but operators do not always observe safe-driving principles and practices. The petroleum industry has provided extensive and readily-available information whereby motor vehicles can be maintained in safe-operating condition through periodic lubrication and checking, but operators of motor vehicles do not always make use of those facilities.

The petroleum industry collects each year from its customers millions of dollars in gasoline taxes, and other levies, for the specific purpose of building and maintaining safe highways, but much of the revenue is being diverted to general purposes and highway work neglected. Furthermore, tax rates are tending to become excessive as to make the operator financially less able to maintain his vehicles in safe-operating condition.

The petroleum industry is directly interested in highway safety. It is itself a large user of motor vehicles and of the highways. The motoring public constitutes its largest customer. The industry, because of its direct and constant contact with the motoring public at service stations, is in a favorable position to promote the safety both of human life and of the financial investment in automotive equipment.

In the opinion of the petroleum industry's own safety experts, the practical promotion of highway safety is a matter of driver education rather than of ballyhoo, "terrorism," or regulatory and restrictive legislation. It is their belief that virtually all accidents can be prevented by courteous, considerate, and correct driving, since traffic accidents are chiefly driver accidents.

Safe-driving practices, while fundamentally similar, have not been standardized. Therefore, it has been recommended that suggestions promoted by the companies be based upon accepted local practices. Distribution of the information is possible through safe-driving booklets to be passed out at service stations, to be mailed direct, or through other convenient mediums. Some companies already are distributing booklets promoting safety. Others are devoting portions of advertising to the subject.

Twenty-Ton Economy Run

WILD Bill Cummings, who on May 30 will be driving a race car around the Indianapolis track to seek a 500-mile speed record, has undertaken a different sort of drive—to set a 2600-mile economy record. The test is being conducted under the official sanction (No. 3402) of the contest board of the American Automobile Association, to determine the actual costs of transporting a 15-ton payload on a semi-trailer towed by a Chevrolet 1½-ton tractor, specially equipped with a Thornton dual-ratio, four-rear-wheel drive. Load, trailer and tractor together weigh 20 tons.

Cummings is accompanied by Harold Baxter, official observer of the A.A.A., who will certify to the costs of the operation. A unique feature of the test is that costs will be computed and announced at each of the scheduled stops on the 2600-mile trip, which will include the principal cities of northern and eastern states.

Cummings began the run Monday, April 20, leaving the General Motors Building, Detroit, at 2 p.m. At each stop, the vehicle will be exhibited in the street at Cummings' hotel headquarters. The schedule for the first week included Flint, Grand Rapids, Fort Wayne, and Indianapolis.

The 15-ton payload consists of specially formed blocks of concrete, securely bolted down to the trailer platform, and tied together by a heavy bar of steel running the whole length of the load. Virtually the entire weight of the load and the trailer is carried on the four dual rear wheels of the tractor and the four dual rear wheels of the trailer. Thus, 16 heavy-duty pneumatic tires support the weight.

Two standard Chevrolet rear axles form the drive, power being delivered to both through a transfer case that distributes the power equally to the two axles. The drive is rated to develop 7,700 pounds of tractive effort, giving it the ability to handle 22-tons gross load over a 19 per cent grade.

•

Safe Drivers Get Awards

SAFE driving awards were presented by American Mutual Liability Insurance Company to thirty-four drivers of Louttit Laundry Company, What Cheer Laundry and Swiss Cleansing Company at the annual dinner of these companies held last month at Providence, R. I.

The presentation of gold medals and certificates was made by Frank B. Brown, district engineering manager of the Providence office of American Mutual. Edward C. Jacobs, formerly of the Providence office and now assistant district engineering manager in the company's New York office, was the principal speaker. Safety was his topic.

Outstanding among the drivers honored were H. R. Brannigan and T. Shanley, both of whom received seals signifying nine years of driving without a reportable accident. One eight-year seal, two seven-year seals, two six-year seals and three five-year gold medals were among the other awards.

Louttit Laundry Company employees honored were: H. R. Brannigan, nine-year seal; H. F. Quinn, seven-year seal; J. Cannan, six-year seal; E. S. Morrill and Albert Hadfield, five-year gold medals; R. S. Goldsmith, four-year seal; E. W. Peterson, three-year seal; Edmund Christy, two-year seal; P. Bentley, H. Berry, T. Blessing, H. Burrill, E. MacKay and A. E. Shaw, certificates signifying a year without an accident.

Swiss Cleansing drivers receiving awards were: L. Downes, four-year seal; William Lenau, three-year seal; Harry Gibson, R. Hall, M. O'Leary and L. Penta, one-year certificates.

Drivers honored from What Cheer Laundry were: T. Shanley, nine-year seal; F. Mattson, eight-year seal; W. Rochan, seven-year seal; F. Whelden, six-year seal; F. Bacon, five-year gold medal; T. Muenzel, four-year seal; L. Goff, three-year seal; G. Mederos, two-year seal; Fred Broghan, W. Gibson, George Harlow, J. Kelly, A. Tanner and J. Wilkinson, one-year certificates.

MIDLAND
(Christensen)
AIR • VACUUM
Power Brakes
SPECIAL KITS FOR
FORD • DODGE
CHEVROLET
Trucks, Tractors
and Buses

Get RIGHT on BRAKES

NEW
Air
Brakes for
1935-1936 FORDS

• What every operator of a Ford Truck, tractor, trailer or bus wants immediately! The Midland 7 cu. ft. Air Compressor . . . almost double the usual capacity . . . provides ample reservoir pressure under all driving conditions. Compensating foot control valve and full stroke cylinder assure easy, positive, responsive braking. Get the complete details now . . . mail the coupon. « « « «

MIDLAND PROVIDES NATION WIDE SERVICE

Midland is the logical producer of complete power brake equipment, both air and vacuum. Midland equipment, designed by the pioneer inventor of power brakes, is standard and interchangeable with your present hook-up. Long famous for sound engineering and high quality production, Midland equipment is always dependable . . always right, and conforms with all state laws. Midland service is near at hand . . there is a Midland distributor in all parts of the country. Get his name . . the coupon will bring it.

MIDLAND STEEL PRODUCTS CO.
10609 MADISON AVE. • CLEVELAND, O.

•

Midland power brakes never cost more and generally less than other power brake equipment.

MAIL THIS COUPON
And Know the Answers!

MIDLAND STEEL PRODUCTS CO.
10609 Madison Ave. • Cleveland, O.

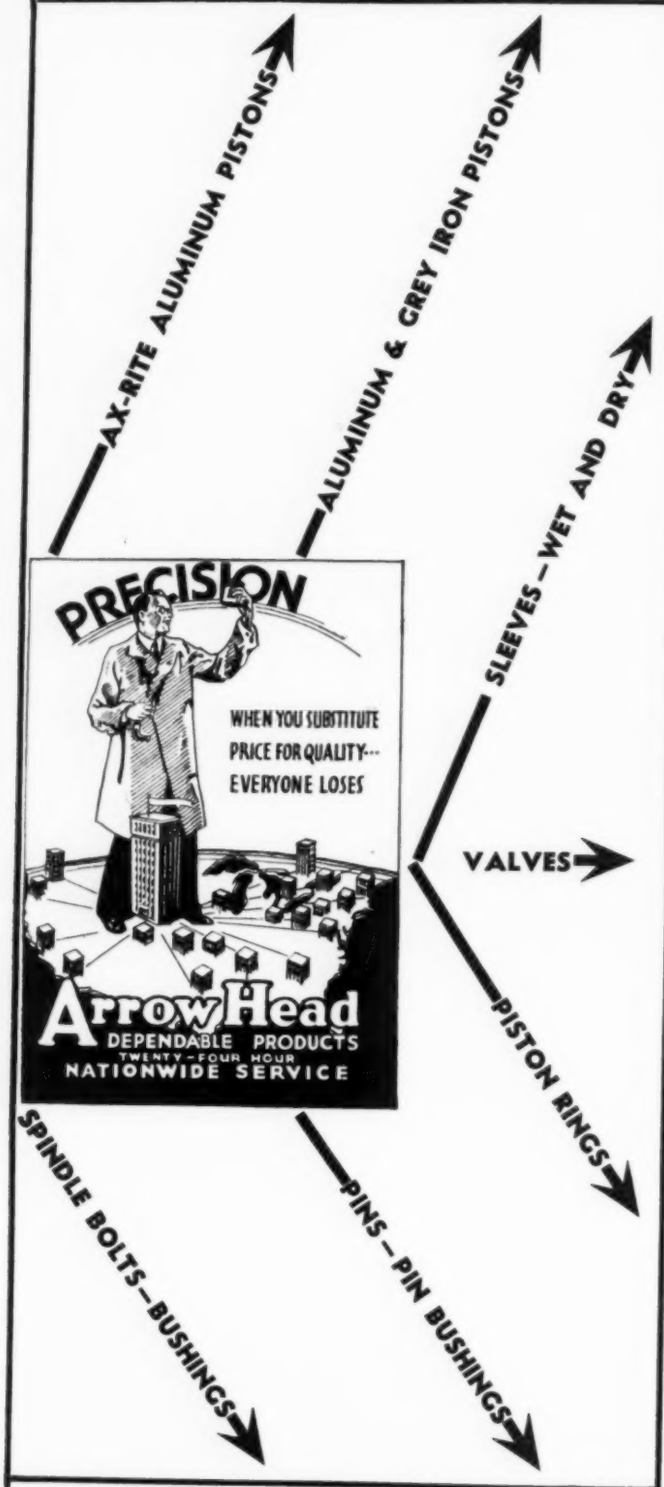
Send complete facts and price on Midland power brakes for _____ trucks, with name of nearby distributor.

Name _____

Address _____

City _____ State _____

STANDARDIZE



ARROWHEAD
STEEL PRODUCTS COMPANY
MANUFACTURERS OF PRECISION PRODUCTS
FACTORY AND GENERAL OFFICES — MINNEAPOLIS
Nation-wide Service from These Warehouses:
Atlanta · Baltimore · Boston · Buffalo · Chatham, Ont. · Chicago · Dallas
Denver · Kansas City, Mo. · Los Angeles · Memphis · Miami · Milwaukee
Newark · New York · Omaha · Philadelphia · Pittsburgh, Pa.
Portland, Ore. · Rochester · St. Louis · San Francisco · Seattle · Toronto

UNIFORMS *for* DRIVERS
(One or One Thousand)

STAR has a Driver-Uniform Proposition that will interest every fleet operator—large or small. Many large fleets, from Coast to Coast, are now Standardizing on Star Uniforms. They are truly inexpensive.

STAR can furnish the name of your firm or trade mark neatly embroidered on each Uniform. The fabrics are attractive, durable and INEXPENSIVE! New Summer Styles Now Ready!

Catalog and Samples Yours for the Asking

STAR UNIFORMS ★ 66 VARICK AVE., BROOKLYN, N. Y.

Time to Think About Uniforms

(*Continued from page* 35)

fresh, at a service cost of about 50 to 60 cents per uniform. This service includes furnishing, cleaning, picking-up and delivering the uniforms. Since the title to the uniform remains with the supplier at all times, he assumes the obligation of replacing old uniforms with new, when they become worn out. The price given above is again approximate, depending on many factors, such as type of uniform, quality, location, etc., etc.

Another important thing to consider is shrinkage. The wise buyer of uniforms will make sure that the uniforms he selects are *pre-shrunk*, so that they will come through the laundering process without losing their size and fit. And another important precaution is to make sure that they are *fast color*. Nothing is more discouraging than to have a uniform do a "fade-out," simply because the manufacturer failed to provide fast-color fabrics.

We haven't said anything about caps, as yet. Most fleet operators will want their drivers to wear some sort of distinguishing cap, as nothing looks more undignified than a truck-driver in a peak-cap. We understand that caps with detachable tops, to match cotton uniforms, can be obtained at from $1.75 to $2.25 each (including the extra top), and that cleaning service costs about 5c each top. They also can be obtained on the rental plan, if desired, the same as the other parts of the uniform. Naturally, if caps are used, these should match the uniforms.

And now, a word about trade-marking on uniforms. Standardization and advertising are two of the most important factors of any business. Millions of dollars are being spent by the companies which you fleet executives represent, to keep the firm name and trade-mark before the public at all times. These companies take advantage of every means to advertise their businesses. Surely they will recognize the valuable, yet inexpensive publicity to be derived by having their name or trade-mark neatly embroidered on the uniforms of their personnel. The basic thought which this brings out is that uniforms, properly selected, will pay for themselves in increased business and good will.

Fleet operators in many lines of business are now enjoying this very thing—through uniforms. Take the taxicab companies, for instance; city and inter-city bus operators; laundries; dairies; bakeries; etc. Why should elevator operators and shop mechanics, for example, be decked out in nifty uniforms, while truck drivers, who are contacting the public all of the time,

are in many cases not? It's really amazing what a uniform can do to a man, or to a service, when you stop to think about it. And today more people are thinking about it than ever before. In fact, a statistician tells us that today, 75 per cent more truck drivers are uniformed, than in 1930.

We do not have to conclude this article by giving you a long list of fleet operators who have adopted standardized uniforms. You can find out for yourself, very easily, by observation in your own neck-of-the-woods. If you are still doubtful as to the soundness of the advice we have given you, just ask any fleet operator who has adopted driver-uniforms. We are quite sure that he'll tell you that it pays big dividends.

●

Motor Tester Is "Most Valuable"

(*Continued from page* 23)

dash of a motor truck must be built to withstand road shocks and other jars, and so it is very likely to become inaccurate in service. For that reason I don't trust them, and have incorporated an ammeter of *known* accuracy in our motor tester.

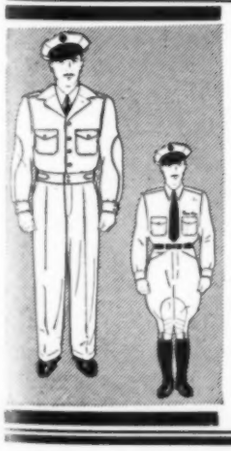
We first use the ammeter for checking up the generator output. Without a good generator we can't get anywhere. They are rather delicate machines, comparatively speaking, and well worth taking care of, and their output governs the life of the battery to a very great extent.

So let's use the *accurate* ammeter on our motor tester when adjusting the output of the generator. And let's adjust it so that it is sufficient to take care of the battery and keep it doing the numerous things it is called on to do. But at the same time, let's keep the charging rate where it won't buckle and ruin the battery plates, or overheat and ruin the generator itself. And if there is any voltage regulation to be checked up, our volt-meter, previously mentioned, will be used here again.

A sad sight, indeed, is a great big powerful truck, capable of doing a lot of hauling, and representing a nice investment, setting on the side of the highway—all burned up. So what? Let's get the shorts out of the wiring; and put the battery cables where they can be seen. And let's check up on all of the *hidden* wiring, too. And there's lots of that, too, and it can all be done in about five minutes' time. But how? The "answer" lies in a "baby" of my own design. So far, I haven't seen one on any of the manufactured motor testing apparatus—but it works!

Get yourself a six-volt buzzer. Take out all head-

(*Please turn to page* 66)



Time to think about Uniforms for Summer!

Investigate the most outstanding uniforms and proposition in America! Famed HANOVER Regulation Uniform Shirts, Slacks, Breeches, Blouses, Caps and Ties are supreme in design, in fabrics, in custom workmanship, in fit. True regulation style. Specially woven fabrics, guaranteed pre-shrunk and fast-color. Tests prove they outwear ordinary fabrics 3-to-1. Write today for complete catalog containing swatches of materials.

DIRECT LOW WHOLESALE PRICES! IMMEDIATE DELIVERY!

HANOVER UNIFORM CO.

A Division of Hanover Shirt Co., Inc.

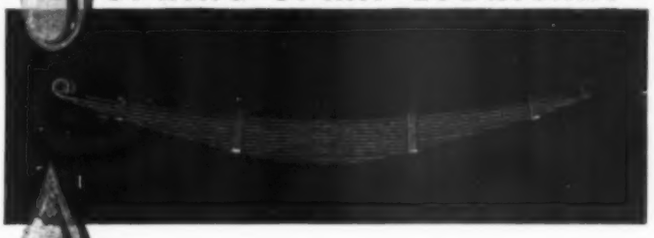
120 S. Hanover St., Baltimore, Md.

FOR THE "Changeover", OILDAG* ASSURES EXTRA PROTECTION WHEN USED AS A –

CRANKCASE AUXILIARY LUBRICANT

TOP CYLINDER LUBRICANT

SPRING SPRAY LUBRICANT



A wide choice of excellent auxiliary lubricants containing "Oildag"* Brand colloidal graphite (in oil) is available to automotive dealers, jobbers and wholesalers.

The use of these products is invaluable for protection of new and used cars alike. The graphoid surface formed on the friction parts easily withstands the temperatures existing in the combustion zone of an engine, thus safeguarding against metal-to-metal contact when momentary oil film rupture occurs.

Spring spray oils are especially efficient when charged with Acheson's colloidal graphite. The fine particles of graphite readily penetrate between the springs giving a pressure resisting solid lubricant that not only cuts squeaks to a minimum but lasts longer.

Send for Booklet AC

*Reg. U. S. Pat. Off.

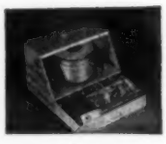
REG. U.S. dag PAT. OFF. COLLOIDAL PRODUCTS

ACHESON COLLOIDS CORPORATION

FOUNDED (1908) AS ACHESON OILDAG COMPANY

PORT HURON • MICHIGAN

You'll Be Surprised How Much Time and Labor Sterling Saves on Re-Wiring Jobs



● When you use Sterling patented Silver-Sheathed you are installing the finest and most durable cable on the market—bar none! Silver-Sheathed tops them all in its resistance to destructive elements and in its ability to deliver a full load . . . Sterling provides you with Kits and other aids that make installation quick and easy. A stop-watch test will prove the time savings . . . The Ignition Service Kit—for spark plug wiring jobs—puts all tools and materials in one compact cabinet, eliminating fumbling and leg-work.

For wiring lights, generators and what-not, the Primary Service Kit makes relatively the same savings. A Copyrighted Loading Chart shows the right gauge for every circuit. Both kits are moderately priced.

Standardise on Sterling, the *Complete* Cable Service

Sterling gives you a complete line of the finest cable —in spools and in sets that duplicate original equipment. Sterling *does* cut maintenance costs, and at the same time delivers service that cannot be obtained from ordinary cable. Ask your Sterling jobber—or write us direct for full information.

STERLING CABLE CORPORATION
Port Huron, Michigan
A Division of Electric Auto-Lite Company

Motor Tester Is "Most Valuable"

(*Continued from page 65*)

light, tail-light, dash-light, dome-light and any other bulbs that will set current flowing when the lighting switch is on, and also take out the fuses. Then snap the buzzer leads to each end of the fuse-mounting with the lighting switch turned on. If the buzzer is silent, there are no shorts. If it buzzes, you have a nice short to look for.

In searching for the short, feel out every possible place where the wires are in close quarters, and when you get near the right spot, the sound of the buzzer will change, depending on how positive the connection is that is causing the short. If you locate it and the buzzer suddenly stops buzzing, you'll find the short right in your hand. And why not fix it then and there? If you can't get a buzzer, a 6-volt horn will do the trick, but, personally, I don't like the noise.

There are a great many other things that you can do with a piece of motor testing equipment, and I have only tried to outline the major ones. As the old saying goes, "When trouble is found, the work is half done." And while I have other shop equipment, I think an awful lot of my motor tester; and if it will do "half the work," it certainly should be the most valuable piece of equipment to me.

I have purposely refrained from mentioning the makes of the equipment used in my "assembled" motor tester, because there are so many different makes of equipment used in it. However, it might be in order to add that I have used various makes of "factory-made" motor testing apparatus, and I believe that my own, just described, is as effective as any of them. The only thing it seems to lack is the "fancy trimmings." And we don't need them in fleet work.

I have seen a lot of your questions and answers on automotive work, but I believe your question, *"What Piece of Shop Equipment Is Most Valuable to You and Why?"* is the broadest and best I have ever seen. The answer is this: Any piece of shop equipment is valuable, only to the extent that it will produce accuracy of work and economy of operation. And after all, isn't that just what we are all striving for?

In closing I would like to get in a few remarks on the subject of cooperation between fleet managers and fleet mechanics. In some way I would like to open the fleet manager's mind to better cooperation with his mechanics. And the mechanic's mind to the realization of the value of manufacturers' specifications as to moving parts clearances; why these are necessary; why they should be followed; the value of proper lubrication; why certain oils and greases are recommended for different parts of the units; why different sized wiring is used to transmit current to the different automotive electrical appliances; the specified capacities of the different units; and other important factors incidental to keeping the vehicle on the road. I think that a lot could be done along these lines, and that a motor tester, properly used, will go a long way toward promoting longer motor life, maximum gasoline and oil mileage, and last, but not least, safer driving.

●

We "Go the Rounds"

"DEAR Editor: Your magazine, FLEET OWNER, goes the rounds of the Los Angeles County Road Department Shops and is very highly regarded." —*James L. Darling, Alhambra, Calif.*

Write Today For Full Information About

SPONGEX

GRID CONSTRUCTION

Seat Cushions or Fillers

All Sponge Rubber Construction · Cheaper Than Springs · The Most Comfortable Cushion Ever Made

Address Dept. F

SPONGE RUBBER PRODUCTS CO.

DERBY CONN.

DUA-SAF SIGNAL

The Stop-Light that Speaks with Action

Combination Tail and Swinging STOP Light for trucks, buses and trailers

List Price: Black, $10.00
Chrome, $11.50

Write for fleet discounts and full details.

SAFETY SIGNAL DEVICES, INC.

5045 BROADWAY CHICAGO, ILL.

Western Distributors: Transportation Guarantee Co., Inc., 35 Chesley St., San Francisco, Calif.

734,364 Miles—No Accidents

STRESSING the progress and increasing success of the national safety movement, The Autocar Company has instructed all its branch managers throughout the country to make contact with and assist the local safety campaigns in their cities.

R. P. Page, Jr., President of Autocar, and a member of the Traffic Safety Committee of the Automobile Manufacturers Association, points out that "it is clearly the duty of the Company, as a member of the automotive industry, to get behind the campaign of the National Safety Council and to give it every active and personal assistance that we can."

The safety record of The Autocar Company's own drivers is given in figures just announced for the past four years. Starting March 1, 1932, the new car delivery men have covered 734,364 miles without an accident.

•

More Sodium Lights Used

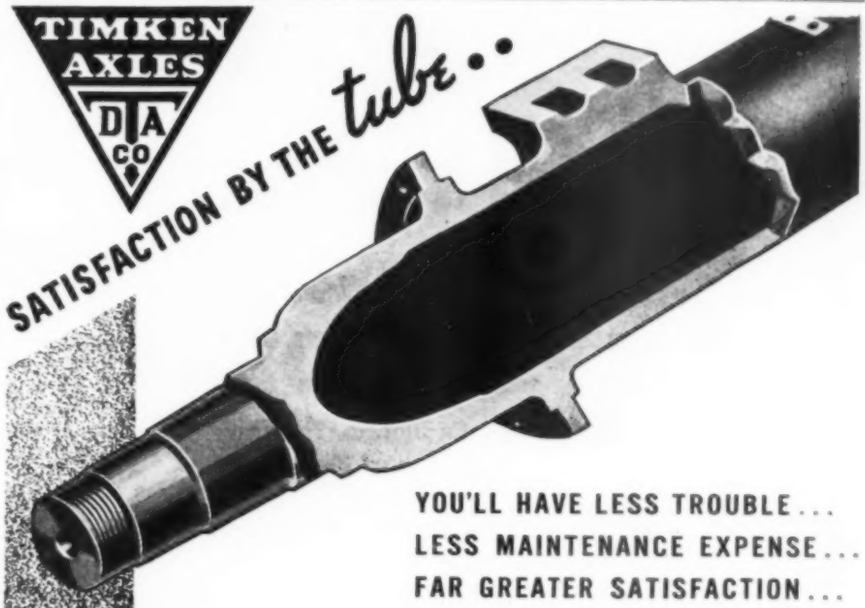
THE largest installation of sodium lights in the United States will be in operation along a four-mile stretch of Summerville boulevard on the outskirts of Rochester, N. Y., early this summer, officials of the Rochester Gas and Electric Corporation have announced in placing an order for 110 "golden light" luminaires with the General Electric Company.

The sodium method of illuminating the residential area was chosen by the board of supervisors of Monroe County, and will mark the first extensive use of sodium for this type of lighting. Heretofore the sodium unit has been used mostly for highway lighting.

The Summerville boulevard installation will bring back to the East the largest single stretch of sodium lighting, surpassing a three-mile highway stretch between Tacoma and Fort Lewis, Wash., where 66 units are now in operation.

TIMKEN AXLES DTA CO.

SATISFACTION BY THE tube..



YOU'LL HAVE LESS TROUBLE...
LESS MAINTENANCE EXPENSE...
FAR GREATER SATISFACTION...

if you standardize on

TIMKEN TUBULAR AXLES *for Trailers*

WELD-BILT—electrically welded by Timken's own process into a permanently integral unit.

The strongest, most rigid axle built for trailers; no keys or bolts; no rattles or weak spots.

You can buy cheaper axles, or axles that *look* like this. But you can't buy such complete satisfaction.

THE TIMKEN-DETROIT AXLE COMPANY, DETROIT, MICHIGAN

Two-fisted..!

5.27 to 1.. *a swift "left" for fast driving*

7.06 to 1.. *a potent "right" for grades*

and 10 to 1.. *that stamina "edge" that makes a real champion!*

The Timken 2-SPEED DRIVE

Double Reduction, 1½ Ton

- only three additional working parts
- all the simplicity and sturdy ruggedness of Wisconsin Double Reduction
- perfect accessibility; easily removable carrier unit
- interchangeable with Timken Bevel and Double Reduction, 1½ Ton

The new light-weight champion—Timken 2-Speed Double Reduction Axle, 1½ Ton; for more flexible, more economical hauling.

2-SPEED AXLES

THE TIMKEN-DETROIT AXLE CO., Detroit, Mich.

WISCONSIN AXLE DIVISION, Oshkosh, Wis.

Holds Safety Banquet

THE New York Truck Renting Corporation, an organization furnishing complete transportation service to firms in Metropolitan New York, held its annual Safety Banquet at the Hotel Astor on March 28, 1936.

The banquet was attended by more than 100 drivers of the firms using equipment furnished by this company, and was a success from every standpoint. Addresses were made by Harold L. Fischler, manager of New York Truck Renting Corporation, and also by prominent police and safety officials.

A new bonus plan was inaugurated at the banquet, meeting with wide approval on the parts of the drivers. It consists first of a "Drivers' Court" to determine responsibility in case of accidents. Then, the "Bonus Plan" provides for a payment of $2.00 to each driver for each 20-day operating month that is accident-free.

In addition to the bonus plan, substantial cash awards will be made at the end of each year. Drivers to be eligible to compete for these grand prizes must have received the monthly bonus of $2.00 during the entire year for no accidents in addition to a compliance with the following conditions:

1—Must exercise care and control of the truck.

2—No unnecessary road calls.

3—No riding on flat tires.

4—No fender damages, body or paint scratches.

5—No loss of equipment.

Safety activities of this kind in automotive fleets are highly commendable movements. It is expected, as a result of same, that the New York Truck Renting Corporation will come through the year 1936 with an enviable safety record.

•

N.S.P.A. Adds 17 New Members

ANOTHER healthy addition to the N.S.P.A. roster was made by the recent election of seventeen new members. . . . Thirteen of the new members are jobbers in the United States; two are Canadian jobbers; and the other two are manufacturers.

MANY WOULD ACCEPT NO SUBSTITUTE
for the BODY CONSTRUCTION of
THE GERSTENSLAGER CO. Wooster, Ohio
75 YEARS OF BUILDING JUST GOOD BODIES — NOTHING ELSE.

The BIG LIFT
Here's tremendous power, wide range, easy operation—in a full line of hydraulic jacks, hand and floor types, from 1 to 75-ton capacities.
For floor, curb, road, and shop use — Buy Blackhawk. Ask your Jobber Salesman. Write us for literature.
Blackhawk Mfg. Co.
Dept. F. O. 5 Milwaukee
BLACKHAWK HYDRAULIC JACKS

Safety Featured in Petroleum Fleet

(*Continued from page 24*)

plement rather complete.

Located under the upper step, on both sides of the rear, are twin reflector devices, which protect overtaking traffic at night, in the event that other parts of our lighting equipment should get out of order. This seldom happens, however, because of the effectiveness of our constant maintenance system.

Of particular value is the automatic "emergency" system, which automatically switches all of this lighting equipment over to a reserve "hot-shot" dry-cell battery. At the same time it switches on a road-light. This automatic system makes it practically impossible for our drivers to plunge off the road in the event of failure of the regular lighting system. A pilot signal in the cab provides an additional, continuous check on the operation of the rear lights.

The men operating this equipment have been provided with what we believe is the quietest cab now manufactured. It is practically sound-proof and thus helps to cut down fatigue. In the operation of the truck itself, drivers are further protected by a step located on top of the bumper and a hand-rail located on the side of the tank, which enables them to easily walk up to the running-board, located directly above the "Essolube" sign. This running-board is made of diamond-plate construction, to prevent slipping and further protection to the driver against slippage is provided by a fancy toe-rail, upon which he can brace his feet while the tank is being filled.

Drivers are further provided with safety devices—a mirrorscope being located on each side of the cab—double windshield wipers are provided—an additional fog-lamp is installed directly above the front bumper, to be used in bad weather or night driving—and a pair of marker lights on the lower portion of the front fenders as well.

The substantial bumpers which you will observe at the rear of these trucks, protect a drop-bar bumper located in the middle of the can-box door. This carries upon it a courtesy sign: "*We'll Share the Road—Blow Your Horn.*" Rub-rails on each side of these trucks are additional safety devices—to promote both appearance and safety.

We feel, from the standpoint of mechanical equipment, that these vehicles are the most modern-operating on our highways today. They are operated by men whose keen perception of sales possibilities should give them the necessary "brain power" to enable them to readily react favorably to those types of danger signals which might indicate the possibility of an accident occuring.

At the present time the writer is serving as chairman of the National Safety Committee of the American Trucking Associations, and it is gratifying to feel that the gospel which that organization is preaching and has entrusted to him, can be carried out with the cooperation of the executives of the Standard Oil Company of New Jersey.

●

National Lubrication Week

THE week of May 23 to 30 inclusive has been set aside as "National Lubricate for Safety Week." This action on the part of the oil marketing industry is the result of a suggestion made by Victor Scales of the American Petroleum Institute.

A TRUCK
CANT MAKE MONEY
IN THE PAINT SHOP

A COMMERCIAL vehicle has to travel all the time with a pay load if it is to succeed in this world. Occasionally it must be taken out of service for repairs, and you always insist on a quick job. When it comes to paint, however, you always just take for granted it's a long job because it always has been. Not any more. EGYPTIAN N-F-R has eliminated a great deal of time in the paint shop. It does a quicker, and better job and therefore is more economical to use.

Write, phone, or wire your nearest jobber, or address us direct. You should have the details of this remarkable finish.

A new and speedier Synthetic!

EGYPTIAN N-F-R

A completely improved synthetic that dries dust free in 15 minutes . . . can be taped for masking in 8 hours. A great time saver. Write, wire, or 'phone us or nearest Egyptian jobber for further details.

THE EGYPTIAN
LACQUER MANUFACTURING COMPANY
R. K. O. BUILDING
ROCKFELLER CENTER, NEW YORK

YOU CAN CLEAN OUT THAT RADIATOR WITH

Sani-Flush

It costs only 6c per car

EFFICIENT cooling systems are important for economical maintenance of cars in a fleet. Accumulated rust and sediment choke the radiators, rob power, delay schedules, lead to costly repairs.

Sani-Flush is fast and inexpensive to use. It cleans radiators thoroughly. It cannot injure aluminum cylinder heads, block, or rubber fittings. It is not caustic. It costs only 6c per passenger car (15c for largest trucks, buses and tractors.) Sold by grocery, drug and hardware stores or jobbers. Ask for the economical 25-lb. pail.

FREE SAMPLE: *Write on your firm's stationery for a sample can of Sani-Flush. No obligation, of course.*

THE HYGIENIC PRODUCTS COMPANY
218 SEVENTH STREET, CANTON, OHIO

Beaurline Fountain Brush

CUTS CLEANING COSTS

REMOVES THE DIRT — SAVES THE PAINT

More than 2000 fleet-owners now use this revolutionary Beaurline Fountain Brush for reducing equipment cleaning costs. This sensational new method loosens grit and grime, flushes it off and polishes all in one combined operation. Preserves finish. Makes old hand methods obsolete. No expensive maintenance or equipment. Quickest and most efficient method in the industry. This Brush is not made to sell down to a price—it is a high grade article. The aluminum castings are heavy enough to stand abuse—bristles are of the best, and plenty of them. Absolutely guaranteed to reduce your fleet cleaning costs of time and labor by 1/3—or your money refunded without question.

Send for test sample immediately. Easy to use. You slide water hose on end of rigid hollow 4-foot handle. (6-foot handle at 40c extra.) This mop of soft tough 4" bristles in cast aluminum head with scratch-proof rubber guard provides gushing fountain. 20% more bristles on new model. Long life refills at low cost.

GET SAMPLE

List price $9.00. 20% discount to Fleet Owners. Send COUPON now for trial brush.

SEND COUPON

CLIP HERE-NOW

BEAURLINE FOUNTAIN BRUSH CO
4913 Broadway, Chicago, Ill.

Enclosed find $7.20 for which please send me one of your Fountain Brushes and complete price quotation.

Name .....

Address .....

City ..... State .....

A Truck Maker Tests Diesels

(Continued from page 28)

From this data we have found that less radiation per cubic inch displacement can be used with Diesel engines. First, from a relatively smaller frontal area and second, fewer fins. Also, while the fan diameter is usually greater with Diesels, the speed is lower, thus reducing the tip speed of the fan. Unfortunately, I have never found a satisfactory way of expressing these differences on a percentage basis. It would seem to be conservative to say that the radiator for a gasoline engine could be used satisfactorily for a Diesel engine of approximately 25 per cent greater displacement.

The question of fuel and lubricants is difficult to handle with our limited experience obtained so far. From results to date, it is evident that the characteristics of both are important. Certainly our experience does not justify the hope that almost anything can be used.

From a design standpoint, we have found it desirable to keep fuel lines protected as much as possible, to prevent difficulty during cold weather. Also, care must be taken to prevent air leaks into the fuel system, although this is not a fuel problem. Adequate settling basins must be provided in the fuel tanks and filters between the tanks and the engine.

Apparently all of the operators have been able to reach a satisfactory understanding with the people from whom they purchase fuel and we have had no difficulty in obtaining fuel with satisfactory characteristics, although we have not gone into the matter intensively as yet.

Relative to lubricating oil, there is much we do not know. Apparently, it has been the practice to specify relatively heavy oils. But this has been changed and S.A.E. 30 seems to be the general type oil desired for the engines we have used. The problem of keeping the oil clean is much more difficult and the filter problem also.

Piston ring sticking seems to be one of the major maintenance problems. We have not yet been able to determine how much of this is fuel, oil or design, but it would seem that for ultimate success, the latter must carry a very large share of the burden of improvement.

General conclusions which can be drawn from our experience to date are as follows:

(1) Diesel equipment for a given service will weigh more and cost more than gasoline equipment. Weight can be reduced by using engines more nearly comparative in size and scaling accessory chassis details.

(2) The basic differences in the engine cycle need recognition in manufacture, service, and operation. These differences are not difficult to learn by competent men in any of these classes.

(3) While current maintenance does not seem to be greater, there is evidence that it may be necessary to do tune-up work on rings, pistons, etc., at more frequent intervals and earlier in the operating life, which will unfavorably affect maintenance costs.

(4) Even with such careful preventive measures, the overhaul period may arrive at an earlier time.

(5) Fuel consumption can be expected to be approximately 50 per cent less than a gasoline engine. The total saving in cost will depend on many other items which renders it impossible to make an intelligent general statement.

(6) Oil consumption may be about the same as in

(Please turn to page 74)

White Registrations Increase

REGISTRATIONS of White trucks and buses in all states in the first two months of 1936 were 71½ per cent higher than for the same period of 1935, J. N. Bauman, vice-president, reports. Fleet orders for White vehicles have increased tremendously since the first of the year, Mr. Bauman pointed out, the increase being shared among trucks and buses.

•

Federal March Orders Double

FEDERAL reports orders for trucks received in March, doubling the number received during March, 1935, according to J. F. Bowman, vice-president in charge of sales. . . . Mr. Bowman said that orders received during March represented the best sales record since March, 1929. . . . Production in the Federal factory has been speeded up extensively, as a result.

•

New Dodge Furniture Van

DODGE has recently developed a furniture van as an addition to its 1936 line of trucks and commercial cars. The body has been designed to meet requirements of style, appearance and efficiency in loading and unloading. . . . At the extreme forward part of the body, directly above the cab, is a roomy compartment for smaller items. The balance of the body provides a great amount of space for the hauling of bulky objects. . . . Full details will be sent on request.

•

UCC to Exhibit at Oil Show

THREE units of Union Carbide & Carbon Corporation will be represented in a combined display at the 9th International Petroleum Exposition, Tulsa, Okla., May 16th to 23rd. . . . The three units are the Linde Air Products Company, Haynes Stellite Company and Electro Metallurgical Company. Each will exhibit and demonstrate several new items of apparatus of special interest to the petroleum industry.

•

Penn Motor Truck Assn. Convention

THE Third Annual State Convention of the Pennsylvania Motor Truck Association will be held this year aboard the *Steamer Seeandbee*, June 18-21 inclusive. . . . The convention-cruise will leave Erie, Pa. on June 18th and will return to Erie on June 21st. . . . Meetings will be conducted by Harry L. Gormley, State President of the Truck Association.

TRUXMORE

WORLD'S BEST 3RD AXLE

150 TONS

MORE PAYLOAD EACH YEAR!

A TRUXMORE 3RD AXLE weighs 1000 to 1500 pounds less than a semi-trailer of the same size.

Saving of dead-weight permits ½ ton more payload each day. In one year (300 working days) you haul 300 x ½ ton, or 150 tons more payload.

At $4.00 per ton, you earn $600 more profit.

We make both 3rd Axles and Trailers

Write for "What Users of Both Say" . . . . Address Dept. B

New York
Syracuse, N. Y.
Binghamton, N. Y.
Rochester, N. Y.
Erie, Pa.

1791 FILLMORE AVE.
TRUCK EQUIPMENT CO. INC.
BUFFALO, N.Y.

Chicago, Ill.
Philadelphia, Pa.
Pittsburgh, Pa.
Boston, Mass.

Ford Exhibit at Atlantic City

FORD Motor Company opened its exhibit at Atlantic City last month, with an environment new in every detail, excepting the ocean and the beach. . . . A completely equipped model service station occupies a prominent space in the exposition. . . . Many eye-arresting and educational displays are shown for the first time this year. For those wanting to see the "innards" of an automobile, there is a revolving chassis depicting all mechanical parts in action. . . . Additional attractions are in the process of work and a complete line of Ford motor vehicles rounds out the many colorful exhibits.

VELLUMOID

Do you really know VELLUMOID? Let us send you a free working sample to test in actual use.

THE VELLUMOID CO., WORCESTER, MASS.

CHANCES are that he won't live to a ripe old age.

Chances are your trucks, if they are not equipped with Weatherhead flexible fuel lines, won't see old age either. Copper tube line breakage is tough on your trucks—tougher on your schedules. Play safe with Weatherhead.

THE WEATHERHEAD CO.
620-724 Frankfort Ave., Cleveland, O.

Van Drivers Sign Pledge

IMPRESSED with the need for commercial cooperation with safety bodies trying to curtail traffic deaths, John L. Wilkinson, mayor pro tem of Charlotte, N. C., and president of Allied Van Lines, has written a safety pledge to be signed by all drivers of that nationwide organization.

Mayor Wilkinson believes this pledge should exert a wide influence, inasmuch as Allied Van Line drivers operate in all parts of the country.

The pledge follows:

"I solemnly pledge myself to obey traffic laws and the common courtesies of the road.

"I pledge myself to think of safety in terms of life and happiness and of carelessness in terms of pain and death.

"I believe a minute lost in avoiding a possible accident will not change the course of business, the rotation of the earth, nor the permanence of my job.

"I believe, above all, that it is smart and praiseworthy to possess a reputation for caution instead of a reputation for daredevil driving.

"And finally, I pledge myself to practice what I preach."

Copies of the pledge will be sent to members of the van association in all parts of the country and will be given to their respective drivers for signature, the mayor said. Allied Van Lines is a division of the National Furniture Warehousemen's Association headed by Marion W. Niedringhaus of St. Louis.

"Safety councils alone cannot be responsible for reducing the mounting toll of traffic fatalities," Wilkinson declared. "Commercial organizations must co-operate, and every driver, commercial or private, should be impressed with his safety obligations. It is time to think of traffic accidents as a matter of national concern, when more Americans are killed in a year than died in the World War."

Illustration shows the famous diamond grid construction which guarantees comfort, longer life and more economy. Note the patented, sturdy, wearproof construction.

YOUR SEARCH ENDS HERE
for the
RIGHT SEAT CUSHION

Each year increasing numbers of business men realize that *Black Diamond* All-Rubber seat cushions and back rests hold the best solution to an expensive problem. You, too, will recognize the extra value, the longer life, the additional comfort that is engineered into every *Black Diamond* cushion—once you try them in your trucks. All upkeep expense is eliminated. They can be installed as original or replacement equipment to fit any size or shaped cab. Write for complete details and new low prices.

KARPEX MFG. CO., 1428 E. 19th St., Indianapolis, Ind.

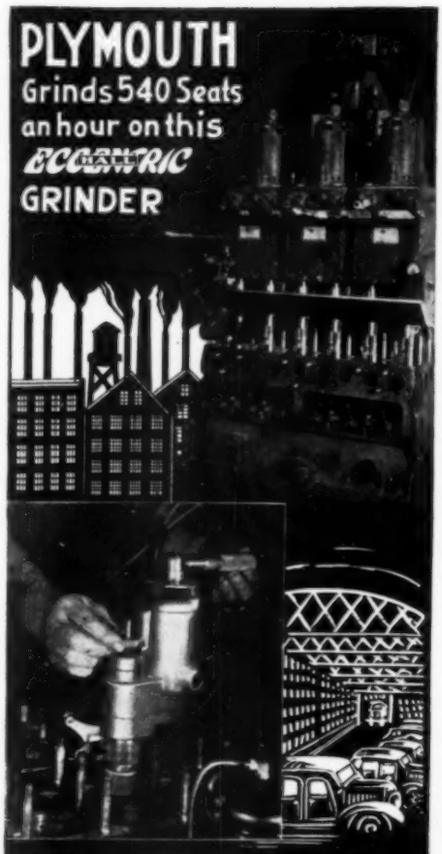
REMOVED ALL THE GREASE!

That's what happened after a simple 15-minute application of MAGNUS CEMENT CLEANER AND RENOVATOR (92-P) in a large midwestern garage recently. And, for years that floor had never been cleaned except with water!
MAGNUS 92-P not only CLEANS, but WHITENS and HARDENS the cement as well.
WRITE FOR our new 48-page "Automotive Cleaning Handbook," which describes cement floor cleaning with MAGNUS 92-P and many other cleaning operations

MAGNUS CLEANS

MAGNUS CHEMICAL COMPANY
36 South Avenue **Garwood, New Jersey**

PLYMOUTH
Grinds 540 Seats an hour on this HALL ECCENTRIC GRINDER



With a multiple-spindle ECCENTRIC Grinder like this, Plymouth grinds 540 precision seats an hour.

For just a few dollars more than the cost of the cheapest Seat

HALL ECCENTRIC Valve Seat Grinder

Grinder of other types, YOU can own a service type ECCENTRIC Grinder identical in principle and precision with the production Grinders in use by Plymouth and 35 other leading factories.

Investigate before you invest. Write for literature today or ask your Jobber.

THE HALL VALVE SEAT GRINDER SUCTION SYSTEM

Factory Service Managers are also demanding the use of the HALL Safety Suction System to keep grit and grindings out of the motor.

The Hall Manufacturing Co.
1620 Woodland Ave. Toledo, Ohio

N. Y. Ford Exhibit Moves

THE location of the Ford Commercial Exhibit in New York City has recently been changed, from 1710 Broadway, to new and larger quarters in Long Island City. The telephone number is STillwell 4-6400.

This complete exhibit of Ford V-8 truck and commercial bodies and equipment may now be seen in the Ford Building at Northern Blvd. and Honeywell Street, Long Island City, N. Y. The change was necessitated by a long-evident need for expansion brought about by an increasing number of display units and many obvious advantages afforded by the new location.

Among the products conveniently assembled at the one point in Long Island City are:

Trucks and commercial cars of strictly Ford manufacture and equipment. In addition there are on display—contractor's dump bodies—coal dump bodies—snow plows—third axle units, driving and trailing types—auxiliary axles—auxiliary transmissions—trailers—canopy top express bodies—ambulance body—power brakes—radiator protectors—wheelbase extension unit—cab-over-motor conversion unit—air cleaner.

Extreme heavy-duty requirements may indicate the need for auxiliary-equipped trucks, which are claimed to be capable of performing work previously considered excessive for this type of equipment. Satisfactory operation of such units depends entirely upon the proper selection of auxiliary products, based upon careful analysis of the problem involved in each individual case.

Fleet operators in the Greater New York district are cordially invited to visit the new Ford Commercial Exhibit at any time. Inquiries received by mail or telephone will receive prompt attention, we are promised.

•

See U. S. Tax Repeal

LEGISLATURES of almost half the states have placed memorials before Congress asking repeal of the Federal gasoline tax of one cent per gallon. This action has been taken most recently in Alabama, and Kentucky, with a total of 21 state legislatures having placed formal communications on the subject before Congress.

Stating their cases, the Alabama and Kentucky legislatures both pointed out that the Federal tax, as added to the state levies on gasoline, imposes a burden upon users of gasoline which is heavier than they should be asked to carry. The formal communications also declare that taxation of sales of gasoline should properly be left to the exclusive use of the states as a means of providing funds for highways.

Do your part for safety . . .

Safe Brakes cost less today

—for quick, accurate brake balance, adjustment and equalization . . . at lowest cost per truck ever attained . . . use the modern, scientific

EVANWOOD BRAKE BALANCER AND TESTER

—compact, portable . . . need only enough space to jack up the truck. Adjustment of Brakes may be done at night when trucks are parked in their regular stations. Trucks go out with safe brakes every morning.

NO ROAD TEST NEEDED because brakes are accurately adjusted when test is made. The EVANWOOD tests and equalizes all types of brakes regardless of tire pressure . . . wet or dry tires . . . Checks rods, connections and linings. Makes tough brake jobs easy. Easy to handle. Weighs only 30 lbs.

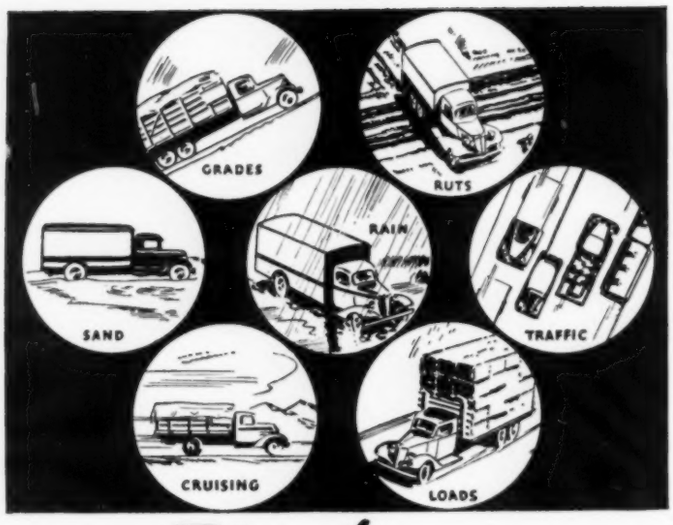
Two sizes: STANDARD MODEL tests brakes with tires up to 34" overall, or 20 x 6.50 truck size. Price complete, with pedal jack (depressor) —$44.50 . . . TRUCK MODEL tests brakes with tires from 34" overall, or 20 x 6.50 tires, to 46" overall. Price complete, with pedal jack—$69.50.

Here is the ideal tool for the fleet owner . . . low cost . . . absolutely dependable . . . built for long hard service. The best investment in safety, efficiency and economy that you can make.

Write or see local jobber for complete information

C & C SALES CORPORATION
Exclusive Selling Agents
General Motors Building
1775 Broadway New York City

EVANWOOD
Safety BRAKE
TESTER and BALANCER



Master all ROADS and *All* LOADS

WITH 3 AXLE RATIOS IN YOUR TRUCK

Fill the gaps in gear ratios and get smooth, steady power for any driving condition. Insure quick delivery of pay loads over all roads. Save 18,000 to 50,000 engine revolutions per hour with a high speed axle ratio. This means a cool engine, operating at the most efficient speed.

A 3-speed Auxiliary Transmission
which provides
LOW, HIGH and MEDIUM SPEED
all in one assembly

This desirable truck unit is installed directly back of any standard transmission, with no unsprung weight. Provides 12 forward speeds and 3 reverse. Saves engine, clutch, main transmission, universals, drive shafts and axle. Reduces all operating costs, increases profits and gives trucks longer life. Relieves strain from overloaded trucks.

A Money-Maker and Money-Saver

The Watson-Brown-Lipe Auxiliary Transmission installed in your truck makes you money with its low speed; saves you money with its high speed. For all 1 to 3-ton Trucks. 100% salvageable. Easily installed in any shop. Quickly repays its cost.

Ask for literature.

Watson-Brown-Lipe Auxiliary
TRANSMISSION
"Power Take-Offs — Universal Joints — Tru-Stop Brakes"
H. S. WATSON CO. • 531 - 4th Street, San Francisco
P. O. Box 385, Toledo, Ohio

REGIONAL DISTRIBUTORS

Billings, Mont.—Northwest Auto Sup. Co.
Boise, Idaho—Olsen Manufacturing Co.
Butte, Mont.—Andersen Motor Co.
Cambridge, Ohio—Allison Body Sales
Columbus, Ohio—Hercules Body Sales Co.
Denver, Colo.—Timpte Brothers
Detroit, Mich.—H. & H. Wheel Service, Inc.
Ft. Wayne, Ind.—Allied Truck Equip. Co.
Fort Worth, Tex.—Hobbs Mfg. Co.
Indianapolis, Ind.—Allied Truck Equip. Co.
Jacksonville, Fla.—L. S. Teague & Co.
Kansas City, Mo.—Dealers Transport Co. Truck Equipment Division
Los Angeles, Calif.—Lambert Co., Ltd.
Louisville, Ky.—Dealers Truck Equip. Co.
Newark, N. J.—Wheels, Incorporated
New Orleans, La.—John M. Walton
New York, N. Y.—Wheels Incorporated
Phoenix, Ariz.—Welch Manufacturing Co.
Portland, Ore.—Trombly Truck Equipment
St. Paul, Minn.—Colby, Ramm & Co.
Salt Lake City, Utah—Koopsel & Love
Seattle, Wash.—A. D. Blackler Company
Toledo, Ohio—Turner Brake Service
Tulsa, Okla.—Braden Winch Service Co.

A Truck Maker Tests Diesels

(*Continued from page* 70)

gasoline engines, but the difficulty of keeping the oil clean will call for more frequent oil changing and also more frequent filter element changes.

(7) For best results somewhat different driving is desirable. The engine should be kept operating within a relatively limited speed range.

(8) Changeover installations can be made if careful attention is given to each particular case.

I feel that this is as far as I should go at this time. As has been emphasized, our investigations are not complete. It is a fact that the undesirable characteristics show up sooner than the more favorable ones. For this reason, I hope what has been said will not be taken to indicate a pessimistic attitude toward the Diesel engine. On the contrary, we are distinctly encouraged by the results obtained, and hope to soon have a much clearer idea of the place which the Diesel engine will occupy in the truck field.

(Editor's Note: Mr. Bachman's "notes" which you have just read, were presented last month in the form of a paper read before the Metropolitan Section of the S. A. E. in New York City. . . . Believing that fleet operators throughout the country would be interested in Mr. Bachman's findings, we have made arrangements to publish his remarks in the foregoing form. . . . It is well to bear in mind that Mr. Bachman is "distinctly encouraged" with Diesels, in spite of the fact that his tests, he admits, are not entirely conclusive. Your Editor feels that there is a certain amount of "meat" in his findings, and we are offering it on this basis.—H. C. F.)

●

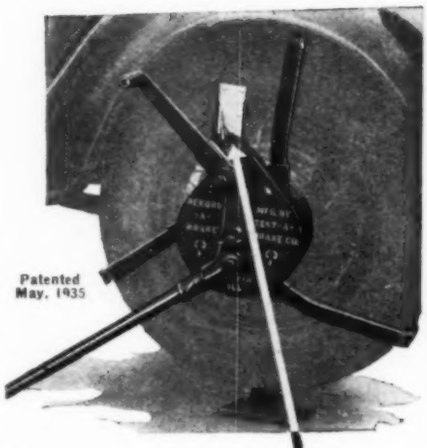
Motor Carrier Servicing Corporation Formed

THE establishment of motor trucking terminals throughout the United States will be made possible through the activities of a newly-organized, non-profit group of motor fleet owners, forwarders and brokers, known as the Motor Carrier Servicing Corporation, 521 Fifth Avenue, New York, N. Y.

The erection of these motor terminals will facilitate the dispatching, loading and unloading of freight. It will help to decrease traffic congestion in large cities, increase employment, improve trucking services and lower the cost of truck operation, the corporation points out. Motor carrier and interstate trucking rates will receive an impetus towards downward revision when the cooperative plans of the group go into effect, it is predicted.

An open meeting of the trucking industry was held on April 1st, at the office of General John F. O'Ryan, former Transit Commissioner and recent Police Comsioner of New York City. Bernard R. Lieberman, a New York Attorney, in cooperation with General O'Ryan and representatives of various trucking concerns and others engaged in the trucking industry, mapped out a plan for the general organization of this servicing company.

At this meeting, General O'Ryan stated that "this co-ordinating organization is necessary, for without the benefit of the consolidation of interests afforded by such a company, the outlook for the trucking industry is not promising. It needs protection, but this does not necessarily mean consolidation of the various concerns." He also stated that in view of the chaotic conditions in the motor trucking industry today, the Motor Carrier Servicing Corporation would afford individual trucking firms an excellent opportunity to stabilize their respective business as well as the industry itself.



New!

New Low-Priced Unit That Adjusts Each Wheel Accurately . . . and Gives a Written Test Record to Prove It

An efficient brake-testing outfit within the price-reach of every truck or fleet owner. Measures brake resistance; shows all high spots in drum. And . . . only REKORD - A - BRAKE produces a signed, dated Test Record on a gummed windshield sticker. Fits any type or size tire. Portable . . . weighs only 35 lbs. Foolproof . . . nothing to break or wear out.

REKORD - A - BRAKE

keeps all brakes in perfect adjustment and avoids accidents . . . saves lawyers' fees and reduces insurance rates.

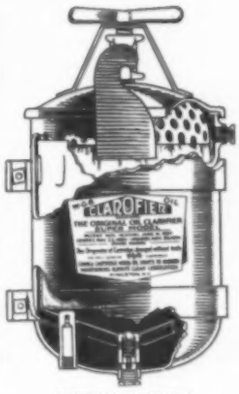
WRITE FOR CIRCULAR AND QUOTATION

TEST-A-BRAKE CO.

Alliance Life Building. PEORIA, ILLINOIS

ANNOUNCING!

THE NEW **"SUPER"** W.G.B. OIL CLAROFIER



INTERNAL VIEW

TWO AND ONE HALF TIMES THE CAPACITY OF THE STANDARD MODEL

Due to the demand for an efficient clarofier for large motor equipment, particularly Diesel motors, we have designed and manufactured the

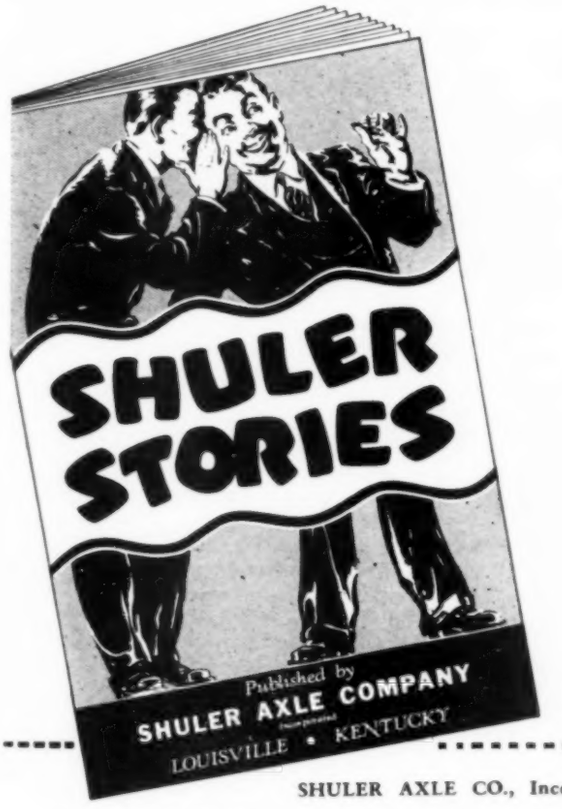
SUPER CLAROFIER

FOR ENGINES WITH OVER 400 CUBIC INCH DISPLACEMENT

Be Convinced! Write for Complete Information

W. G. B. OIL CLAROFIER, INC.

101 GREENKILL AVE., KINGSTON, N. Y.



DO YOU LIKE GOOD STORIES?

EVERY month the Shuler Axle Company gathers together a hundred or so of *the best—the snappiest—stories of the month*, and publishes them in this amusing book—"Shuler Stories!"

If you are even an occasional buyer of axles, you can get Shuler Stories *free*—simply by sending us your name, title and address. No obligation—but many a good hearty laugh!..... Mail the coupon today—you'll not regret it!

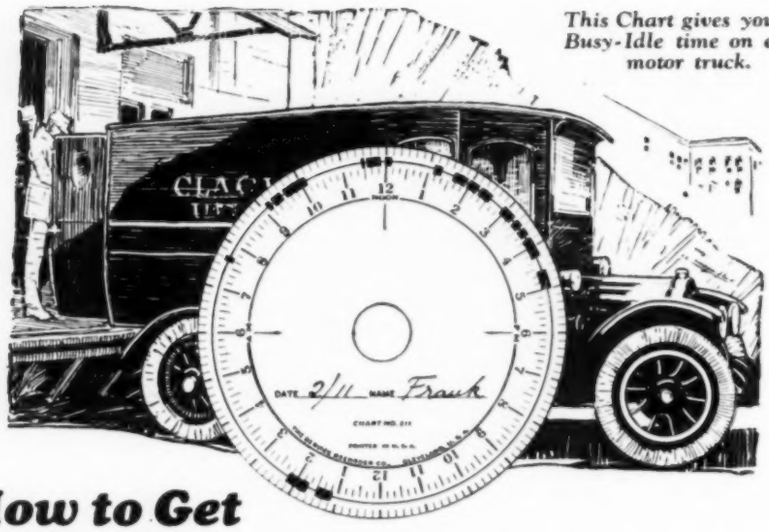
SHULER AXLES

SHULER AXLE CO., Incorporated, 2903 Second St., Louisville, Ky.

Gentlemen: Please put my name on your mailing list to receive *Shuler Stories* regularly. I understand that this involves no cost or obligation to me.

NAME ..... TITLE .....

CITY ..... COMPANY .....



This Chart gives you the Busy-Idle time on every motor truck.

How to Get
THAT "EXTRA TRIP PER DAY"

"WE are now getting an extra trip per day!" report many *Servis Recorder* users. How is it done? Often merely by eliminating a 20 minute or 30 minute delay. Suppose this: "The truck gets home at 4 o'clock, and it doesn't quite pay to send it out on another trip." If the truck had got home at 3:30 then it would have paid to make the extra trip. Same thing at noon: "Here's the truck coming in at 11:15. Well, let's see, it's almost lunch time, so we'll wait till after lunch before we send it out."

HOW TO CORRECT IT

This is a thing which happens again and again and generally it doesn't correct itself, until the *Servis Recorders* are installed and their charts show daily all wasted time—all delays. Suppose you operate six trucks, and you get an extra trip per day with *each* truck! It means you can probably cover your present territory with five trucks, thereby saving three or four thousand dollars a year!

THE SERVIS RECORDER

"Keeps Trucks Busy"

Send today for booklet—"Ten Ways of Getting More Work Out of Motor Trucks."

THE SERVICE RECORDER COMPANY,
1422 EUCLID AVENUE, CLEVELAND, OHIO

New Buses for City Use

DESIGNED and built by the automotive division of the Detroit Street Railway Commission, a new light-weight "driver-beside-engine" type, 22-passenger bus is being considered by the Detroit officials as a model for extensive replacements of existing bus equipment. The bus is now undergoing road tests simulating actual operating conditions and will be operated 6,000 miles or more to prove the new principles of construction. A standard Ford V-8 bus chassis is being used in the experimental work.

Economy of operation and safety and comfort of passengers are particularly stressed in the new vehicle. Operating economy is expected to result from the elimination of about 1,000 pounds in weight through extensive use of aluminum alloys in construction and fittings. When aluminum alloy seats, bumper guards and other fittings are installed, the weight of body and chassis combined will not exceed 6,500 pounds, DSR officials state.

Installation of a rear door to facilitate loading and unloading brought about the use of various safety devices. Weight of a passenger on a treadle at the top of the rear step causes the rear door to open when the front door opens. While the rear door is open, a locking mechanism locks the engine accelerator, preventing movement of the bus. Safety door edges on both doors cause them to reopen if they meet with any object while closing. Pressing or pounding on the safety edges from inside or out causes a buzzzer to sound at the driver's seat. The rear door can be opened alone by a button beside the driver. Bottom steps are at about curb level.

A blower-operated, hot-air heater warms the interior in cold weather. Ventilation is effected by two intake louvres, one on each side of the route sign, which pass air into ventilating shafts built behind the card racks and thence into the bus through narrow slots at the top of the card racks. Air is exhausted through a port behind the route sign.

Movement of the bus is sufficient to keep the air in motion in winter, while in summer, circulation is assisted by two fans, one installed behind each intake louvre. Sliding panels in the bottom of the windows will admit additional air if desired.

Compressed air for the doors and the air-operated mechanical brakes is obtained from an air-compressor connected to the front end of the engine crankshaft. New type lights shine directly down on the passengers. seats are covered with striped mohair backed by rubber to prevent saturation of upholstery when seats are washed.

The new position of the driver's seat, located over the left front wheel, gives unobstructed vision ahead. Steering wheel, gear-shift, pedals and instruments have been moved forward.

•

Builds New Terminal

CONSTRUCTION of another modern terminal by Consolidated Freight Lines, Inc., has recently been completed at San Francisco, according to W. W. Berreman, assistant general traffic manager.

The terminal and office, having 137 feet of frontage, is located at 140 Bluxome Street, with an exit of 45 feet on Brannan Street. Designed for efficiency in handling freight and despatching equipment, the terminal has a concrete dock 116 feet long and 33 feet wide. The entire frontage of the dock will be used for pickup and delivery equipment and will accommodate 15 units at one time. All line-haul trucks will load from the inside of the platform, which is enclosed for a distance of 70 feet beyond the dock into a modern shop. During the time the trucks are being loaded, the shop mechanics are servicing them for the trip out.

General offices and parts rooms extend for a depth of 112 feet along one end of the dock and shop. Particular attention was given to office construction so that the billing and despatching departments would be readily accessible to the loading and receiving

platform, thus eliminating delays in moving freight and equipment.

A complete repair shop and large stock of parts is maintained in San Francisco, where the equipment is serviced and overhauled regularly. With the exception of small units used for city pickup and delivery service, all road trucks operating out of San Francisco are of 6-wheel design and equipped with Cummins Diesel engines. Each unit averages approximately 10,000 miles per month.

The Company extended its operation to California in July of 1934, and this part of its system reaches as far East as Minneapolis, Minnesota.

•

50 Varying Tax Systems

TAXATION of owners and users of motor vehicles is being conducted under a hodge-podge of fifty varying systems, with governmental units shunning standardization or simplification of methods. This is indicated by a comprehensive survey of automotive taxation, recently completed by the National Highway Users Conference, which shows no less than fifty different systems of taxing motorists are in force in the United States.

"The 50 special motor tax systems consist of the Federal Government's levies and individual arrays of taxing methods in force in each of the states and the District of Columbia," the report on the survey states. "With the exception of the gasoline tax, wide differences are the rule, not only as to the taxes imposed but also as to the methods utilized in computing the taxes."

The list of forms of taxes levied against motorists includes the following, among others: gasoline taxes, registration fees, property taxes, excise taxes, sales taxes, privilege taxes, occupation taxes, mile taxes, ton-mile taxes, certificate of title taxes and wheel taxes.

The report cites twenty bases used in computing registration fees. These bases, used in widely-varying combinations, includes the following among others: flat fees, horsepower, gross-weight, value, list price, age, kind of tires, number of times registered, number of cylinders, kind of power, mileage, and locality and type of use.

•

Motor Vehicle Deaths Increase

THE motor vehicle death total last year registered an all-time high, increasing one per cent over the 1934 figure. Deaths were twice as high as in 1923 and nearly 50 per cent above 1927.

Two-thirds of all traffic accidents last year occurred in small towns under 10,000 population and in rural areas. Rural fatalities have increased 44 per cent since 1924, whereas deaths in cities have advanced but 27 per cent. More than 40 per cent of the traffic accident victims last year were pedestrians.

Only among children of school age were there fewer motor vehicle deaths last year than in 1934. No change occurred in the 15 to 24 age group, and in all other age classifications there were increases. Child motor vehicle accidents have increased much less than those of adults since 1922, when safety education began on a national scale.

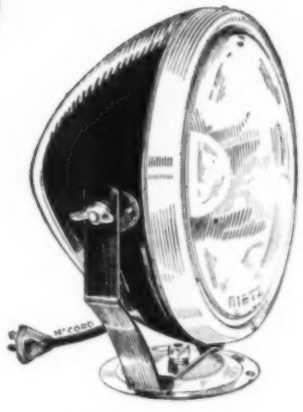
Two sections of the country were able to reduce motor vehicle deaths in 1935, despite the national increase. These were: (1) the eastern area, including the New England and middle Atlantic states, and (2) the western area, including the Rocky Mountain and Pacific Coast states.

Fourteen individual states succeeded in reducing traffic deaths seven per cent or more. They were Delaware, Dist. of Columbia, Illinois, Kentucky, Massachusetts, Minnesota, Montana, North Dakota, Oregon, Rhode Island, Utah, Vermont, Wyoming and Washington.

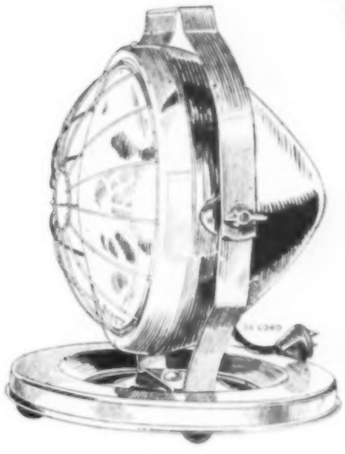
There were more motor vehicle deaths in October than in any other single month, the total reaching 3,850. November and December ran second and third, in that order, as the "most dangerous" months.—*National Safety Council.*

DIETZ FLOODLIGHTS

FOR GARAGE WORK & GENERAL PURPOSES



"Economy"



"Garage"

DIETZ Reliable Floodlights are giving invaluable service to motor fleet operators and are employed in various useful ways.

"Economy" Floodlights are day-lighting loading platforms, driveways, storage yards, etc.

The handy "Garage" Floodlights are at work in fleet operated garages and repair shops, flooding under-bodies with powerful light for repair work, oiling, greasing, etc. Lamps are fitted with swiveled, roller bearing casters for pulling about on the floor, or can be carried around by the handle. The hollow base provides a receptacle for nuts, washers, etc. These lamps are strongly built and well armored for their work.

Your dealer can fill your requirements for Dietz Floodlights. If you do not have Dietz complete Catalog you will find it useful. Send for a copy.

DIETZ

R. E. DIETZ COMPANY, NEW YORK

PIONEER MAKERS OF VEHICLE LAMPS, FOUNDED 1840

HEAD LIGHTS • TAIL LIGHTS • MARKER LIGHTS • DITCH, FOG & SPOT LIGHTS • DIRECTION SIGNALS
TRUCK FLARES • REAR VISION MIRRORS • FLOOD LIGHTS • CATAPHOTE REFLECTORS • FIRE EXTINGUISHERS

Two profits «COUNT 'EM» where ONE grew before...

TIMKEN 6-wheel CONVERSION UNIT

Good news for your 1½ ton and 2 ton trucks—any make; make 'em 6-wheelers with the Timken 6-Wheel Conversion Unit.

Double payloads—double profits; same operating cost—lower ton-mile cost!

More than just an attachment, this unit is soundly engineered, out of a wealth of 6-wheeler experience, to fit your power plants; to be an integral part of the chassis. It is fully tested and proved by thousands of successful low-cost installations.

Timken's is *the* quality unit—the sensible way to increase truck earning power with least investment.

TIMKEN AXLES DA CO

An ideal combination—TIMKEN 2-SPEED AXLE AND 6-WHEEL CONVERSION UNIT

THE TIMKEN-DETROIT AXLE COMPANY, DETROIT, MICHIGAN

Chevrolet Field Organization Meets

CHEVROLET'S truck department field organization, as represented by truck managers of the nine regions covering the United States, met in Detroit last month for a conference on merchandising plans for the remainder of 1936. . . . In addition to truck merchandising, other subjects discussed included the use of rail and truck transportation in handling its own materials and products; and also the company's plans for truck advertising for the rest of the year.

•

National Truck Show Nov. 3-7

THE New Jersey Motor Truck Association will again operate a National Motor Truck Show next Fall. The date is from November 3 to 7 inclusive. . . . Invitations have been extended to the National Association of Motor Bus Operators, and the Society of Automotive Engineers, to hold their conventions in Newark at that time, co-incident with the show dates. . . . Since there is plenty of space available for a combined bus and truck show, as pointed out by John F. Winchester, president of the truck association, it is hoped that these plans can be carried out. . . . We'd like to see this annual Truck Show develop into a real national event.—Editor.

•

Doubles Space in Chicago Office

L. J. MILEY Company, makers of brake lining, have doubled the size of their general sales office in Chicago, according to a recent announcement. . . . With all available space taken up at their spot on Michigan Boulevard, the offices have been removed to an upper floor, making the entire ground floor available for stocking and servicing activities.

•

Davis Re-Elected at Borg-Warner

BORG-WARNER announces the re-election of Charles S. Davis as president of the Corporation. . . . All other officers of the Corporation were renamed. . . . R. C. Ingersoll was elected vice-president, to replace E. S. Ekstrom, who died during the past year.

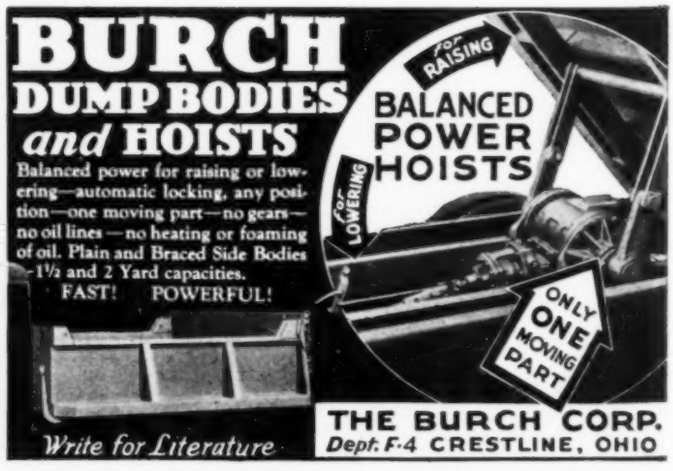
SKF BALL BEARINGS

Eliminate the cost of taking bearings OUT by putting SKF Bearings IN.

BURCH DUMP BODIES and HOISTS

Balanced power for raising or lowering—automatic locking, any position—one moving part—no gears—no oil lines—no heating or foaming of oil. Plain and Braced Side Bodies—1½ and 2 Yard capacities.

FAST! POWERFUL!



Write for Literature

THE BURCH CORP.
Dept. F-4 CRESTLINE, OHIO

Three New Pines Products

PINES Winterfront Company, Chicago, announces three new products of interest to the automotive trade. . . . One of them, "Pines S. O. S." is a new safety overturn switch—a double mercury switch, automatic in action, designed to cut the ignition, should a vehicle overturn in an accident; thus preventing fire. . . . Another new product is the "Pines Stop-Stop", a device to provide timed, alternating flashing of existing stop-lights. . . . The third new product is a set of "custom trim" for Ford passenger cars, consisting of three glistening chromium bands, set over the standard Ford louvre bands, which follow around the radiator. . . . For further details, address Pines Winterfront Co., 1135 N. Cicero Ave., Chicago, Ill. . . . Mention of FLEET OWNER always helps.

•

Special Florist Truck by Dodge

DODGE recently announced a specially-built deluxe panel job, the first of which was delivered to The Henry Forster Floral Shop, Detroit, Mich. . . . Double doors at the rear, and a special door on the curb side of the body permit easy handling of small plants and packages. Running horizontally from the driver's seat back about two-thirds the length of the body is a screen shelf for handling small packages. . . . Copper plating has been used on all parts usually finished in chrome, thus lending distinction to the truck.

•

Wisconsin Court Kills Truck Law

THE entire motor truck regulatory law passed by the Wisconsin legislature in 1935 has been declared invalid by the state Supreme Court, after having been effective only three months. . . . The decision restores to operation the old truck law under which truck operators may pay either a ton-mile tax or a flat-rate tax, and it invalidates increases which more than doubled truck fees.

•

New Doman-Marks Engine Plant

THE opening of a plant in Syracuse, N. Y. by the Doman-Marks Engine Company, Inc., to accomodate the demand for air-cooled engines in industrial and truck use, was announced recently. . . . The company has been incorporated under New York State laws, after having operated formerly at Amesbury, Mass. . . . Orders on the books are said to provide production schedules for the summer months.

•

Miley Buys Duro Brake Band

L. J. MILEY Company, Chicago brake lining manufacturer, reports the recent purchase of the brake band division of the Duro Metal Products Company, also of Chicago. . . . Exchange of brake shoes is a feature of the service offered by jobbers handling the Miley line, for which many economies are claimed.

Navy Pier Gets 1936 ASI Show

THE 1936 Automotive Service Industries Show will be held in the Navy Pier, Chicago, December 9-13, inclusive, according to a joint announcement made by the M. & E. M. A. and the N. S. P. A. . . . The last day, Sunday, will be designated as Trade Day, and the entire maintenance trade (including fleet operators) will be invited to attend.

•

6% Plan for Reo Purchasers

REO announces, through D. E. Bates, president and general manager, that arrangements are now completed to provide Reo purchasers with a 6% finance plan in completing payments for Reo Speedwagons and trucks. . . . This is directly in line with financing arrangements offered by other truck manufacturers, and Reo feels that it will greatly stimulate its truck sales this year.

•

Joins Algoma Plywood

GEORGE I. FISCHER, well-known in the industrial plywood field through his connection with Haskelite for the past eight years, has joined the new Technical Division of the Algoma Plywood & Veneer Company. . . . Mr. Fischer will act as direct assistant in the Chicago office, under the direction of James R. Fitzpatrick.

When Control Counts

★ LATHAN BESLER

Engineered

POWER BRAKES

TO find favor with fire fighters, equipment must measure up to the exacting standards of emergency service. The New York City Fire Department is not only the largest, but also one of the most progressive and best equipped in the country. The huge hook-and-ladder truck pictured above in the shadow of Queensborough Bridge, is typical of the fine apparatus giving New York City such splendid fire protection. It is a *Walter Motor Truck* equipped with LATHAN-BESLER *Engineered* Power Brakes. It is significant that *"Where Control Counts"*, more and more of the country's leading operators and equipment manufacturers specify LATHAN-BESLER. The LATHAN-BESLER line includes complete power brake equipment for every commercial vehicle and combination. Nationwide sales and service. Mail the Coupon TODAY for NEW 1936 CATALOG.

A LATHAN product

LATHAN SINCE 1911

NEW CATALOG OUT

Mail Coupon NOW for FREE Copy

LATHAN CO., Inc. SAN FRANCISCO—Polk & Pine DETROIT — 477 Selden Avenue

GENTLEMEN: *Without cost or obligation, please send me a copy of your new 1936 Catalog.*

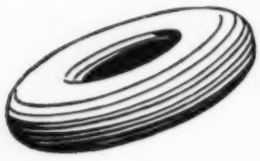
MAN

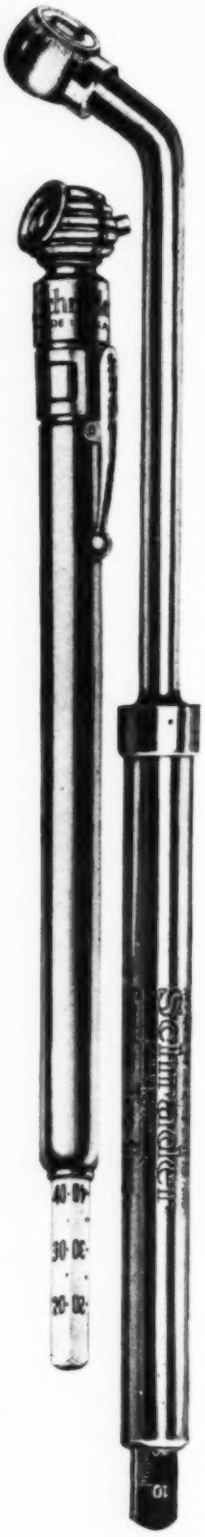
CO.

NO. ST.

CITY STATE

AIR *IS A PART OF EVERY* TIRE





THROUGH long experience, tire manufacturers have learned how to make every part of a pneumatic tire do its utmost toward giving the car, truck or bus owner the greatest possible tire mileage.

And AIR is just as much a tire "material" or "part" as are cords, rubber, bead cables and valves. For maximum tire service, air must be kept "right." In other words, proper inflation is *vitally* important.

To be sure of maintaining correct tire pressures, even in a road emergency, equip every vehicle in your fleet with a Schrader Gauge. Regularly used, it will pay for itself over and over in extra mileage and safety. Order yours today through your distributor.

For Heavy-duty Trucks and Buses

SCHRADER GAUGE No. 7188 has extra-long extension and a dual foot to reach hard-to-get-at valves (as on inside duals). Calibrated from 10 to 60 lbs. in 1-lb. units, and from 60 to 160 lbs. in 5-lb. units.

For Light-duty Trucks, Buses and Commercial Cars

SCHRADER PENCIL-TYPE GAUGE No. 8100 is compact, sturdy, accurate — and easy to carry . . . convenient clip holds gauge to car pocket or service man's jacket. Chromium plated. Four-sided indicator bar (easily read from any angle). Calibrated 20 to 120 lbs.

A. SCHRADER'S SON, BROOKLYN, N. Y.

Division of

SCOVILL MANUFACTURING COMPANY INCORPORATED

Schrader

REG. U.S. PAT. OFF.

TIRE-SAVING VALVES, CAPS *and* GAUGES

ADVERTISERS INDEX:

A

Acheson Colloids Corp.	65
Aluminum Co. of Amer.	3rd Cover
American Breakblock Corp.	—
American Cable Co.	12
Arrow Head Steel Products Co.	64
Atlas Press Co.	—
Autocar Co.	29

B

Beaurline Fountain Brush Co.	70
Bendix Products Corp.	—
Blackhawk Mfg. Co.	68
Bowser & Co. Inc., S. F.	43
Burch Corp.	78

C

C. & C. Sales Corp.	73
Champion Spark Plug Co.	21
Chevrolet Motor Co.	53
Christiana Machine Co.	—
Cummins Engine Co.	6

D

Dietz Co., R. E.	77
Dodge Division—Chrysler Motors	45
du Pont de Nemours & Co., E. I.	2nd Cover

E

Eaton Mfg. Co.	25
Egyptian Lacquer Mfg. Co.	69
Electric Storage Battery Co.	—
Exide Batteries	—

F

Firestone Tire & Rubber Co.	—
Ford Motor Company	13
Four Wheel Drive Auto Co.	37

G

Garlock Packing Co.	—
General Motors Truck Co.	11
General Tire & Rubber Co.	—
Gerstenslager Co.	68
Globe-Union Mfg. Co.	—
Goodrich Co., B. F.	3
Grinnell Company	—

H

Hall Mfg. Co.	73
Handy Governor Corp.	14
Hanover Uniform Co.	65
Hygienic Products Co.	70

I

International Harvester Co.	34A & 34B

K

Karpex Mfg. Co.	72

L

Larkin Co., Inc.	—
Lathan Company, Inc.	79
Lincoln Electric Co.	—
Linde Air Products Co.	41
Lenox Hotel	82

M

Mack Trucks Inc. 39
Magnus Chemical Co. 72
Meyercord Company —
Midland Steel Products Co. 63

N

New Departure Mfg. Co. 7

O

Oakite Products Corp. 10
Oxweld Acetylene Co. 41

P

Packard Electric Co. 51
Pennsylvania Hotel 82
Pittsburgh Plate Glass Co. (Glass Div.) 55
Pittsburgh Plate Glass Co. (Paint Div.) 81
Prest-O-Lite Co. 41

R

Reo Motor Car Co. 49

S

Safety Signal Devices, Inc. 67
Scovill Mfg. Co., Inc. (A. Schrader's Son Div.) 80
Service Recorder Co. 76
Sherwin-Williams Co. —
Shuler Axle Co. 75
S K F Industries, Inc. 78
Socony-Vacuum Oil Co. 8 & 9
South Bend Lathe Works 82
Sponge Rubber Products Co. 67
Star Uniforms 64
Sterling Cable Corp. 66
Studebaker Corp. 4th Cover

T

Test-A-Brake Co. 75
Texas Company 4 & 5
Timken-Detroit Axle Co. 67, 68 & 78
Thompson Products, Inc. —
Truck Equipment Co. 71
Turnsignal Corp. 82

U

Union Carbide & Carbon Co. 41
Union Carbide Sales Co. 41
United-American Bosch Corp. 47
United States Electrical Tool Co. 82
Utility Trailer Mfg. Co. 57

V

Van Norman Machine Tool Co. 17
Veeder-Root Co. —
Vellumoid Co. 71

W

Watson Co., H. S. 74
Weatherhead Co. 72
W. G. B. Oil Clarofier, Inc. 75
Wohlert Corp. —

Z

Zenith Carburetor Co. —

FOR QUICKER FINISHING SCHEDULES AND A BETTER LOOKING JOB . . . .

LAVAX

WHAT specifications would you write today for a product to be used in refinishing trucks and commercial cars? It should—

have the advantages of lacquer in speed of finishing

have the fine working-qualities of high-grade varnish and enamel

be equally practical for metal, wood and the types of processed (coated) metal boards widely used in the panel work of delivery equipment.

Check LAVAX on all these points, and you'll know why this Pittsburgh Product is the leader in the field. LAVAX dries dust-free in 15 minutes at 70° F. Perfect flow. Non-settling. Non-wrinkling. Uniform high gloss. Maximum durability. Benefit by Pittsburgh's years of experience as a supplier of finishes to car and truck manufacturers. 73 Pittsburgh warehouses assure prompt delivery and service. Send coupon below for full information and LAVAX color card.

***LISTEN TO** the Music You Love, superbly rendered by the Pittsburgh Symphony Orchestra and distinguished guest artists, every Thursday at 8 P. M. Eastern Standard Time, over N. B. C. Blue Network and associated stations.*

PITTSBURGH
AUTOMOTIVE FINISHES
MIMAX LAVAX

Makers of Wallhide Paint • Waterspar Enamel and Varnish • Florhide • Sun-Proof Paint • Gold Stripe Brushes • Polished Plate Glass • Pennvernon Window Glass • Carrara Structural Glass • Mirrors • Duplate Safety Glass

PITTSBURGH PLATE GLASS CO.
Paint Division, Dept. M-5, Pittsburgh, Pa.

Please send me full information on LAVAX, including color card.

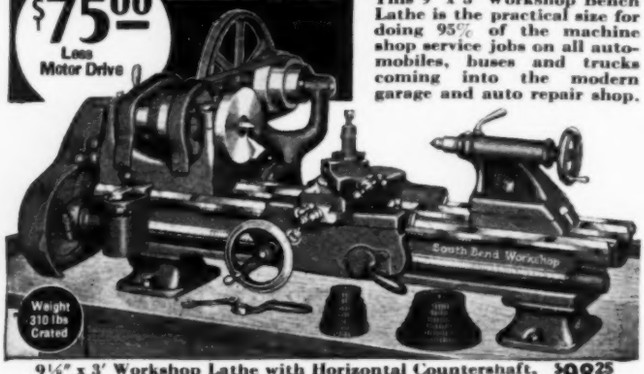
*Name*_____

*Address*_____

*City*_____ *State*_____

New 1936 Model
Genuine SOUTH BEND
9" x 3' WORKSHOP
LATHE

$75.00
Less Motor Drive



A BACK-GEARED SCREW CUTTING PRECISION LATHE

Does the 6 most important automotive service jobs on Pistons, Valves, Connecting Rods, Armatures, Bushings and General Machine Work. This 9" x 3' Workshop Bench Lathe is the practical size for doing 95% of the machine shop service jobs on all automobiles, buses and trucks coming into the modern garage and auto repair shop.

9⅛" x 3' Workshop Lathe with Horizontal Countershaft, ¼ h.p. Reversing Motor, Switch and Belting as shown.. $98.25

Trues Commutators . . Refaces Valves
Makes Bushings . . Finishes Pistons

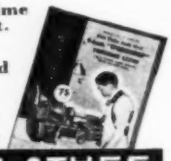
10 New Features: Include Twin Gear Reverse for Right or Left Hand Screw Threads and Automatic Longitudinal Feeds to carriage; Ball Thrust Bearing on Headstock Spindle; New, improved Tailstock; New improved Compound Rest and improved Back Gears.

The most valuable, useful and versatile machine in any auto repair shop and in addition can be fitted with 38 practical attachments for doing all kinds of special jobs.

Easy Payment Terms over an extended period of time can be arranged. Complete information on request.

WRITE FOR THIS NEW BOOK

Showing above lathe in 8 different drives and 4 bed lengths. Ask for No. 15-T. Sent Free.



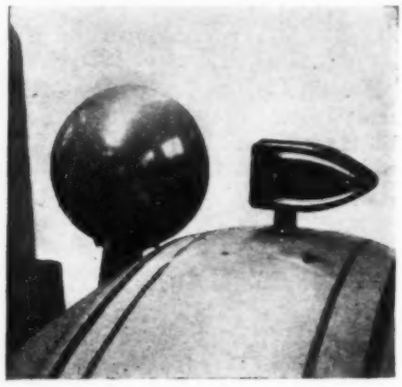
SOUTH BEND LATHE WORKS
895 E. Madison St., South Bend, Ind., U.S.A.

SOUTH BEND *Precision* LATHES

IT IS POSSIBLE

1. To increase your travel distance and productive time by 5% to 15%, without increasing the rate of speed—*(that means a corresponding increased earning power.)*
2. To overcome the most serious objection against trucks on the highways—*(a matter every fleet operator is concerned about.)*
3. To remove the most common cause for motor accidents—*(an important and practical contribution to greater public safety on the highways.)*

All this can be accomplished by spending less than the average price of one new fender.

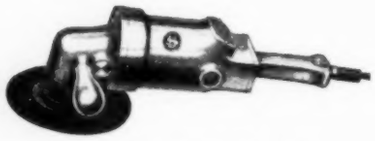


A paying investment.

Watch for this trade-mark

TURNSIGNAL
CORPORATION
400 E. Rittenhouse St., (Germantown) Phila., Pa.

THE
GOOD MECHANIC'S CHOICE



7" Heavy Duty Right Angle Sander

NEW STYLE—AIR CLEANER—NEW AIR OUTLETS

(Blows dirt away from the operator.)

Get the facts on this tool and others in the U. S. COMPLETE LINE from your nearest distributor, or write us.

THE UNITED STATES ELECTRICAL TOOL COMPANY
2494 W. Sixth St. Cincinnati, Ohio

PHILADELPHIA'S MOST CONVENIENT HOTEL

600 Rooms, each with bath
Rates from $2.50

UNLIMITED PARKING

HOTEL PENNSYLVANIA
39th and CHESTNUT STREETS

BUFFALO BOUND?

Stop at the Hotel Lenox. Spacious rooms. Splendid meals. Only 5 minutes from the business and theater district yet removed from downtown din. Single, $1.50 to $3.00. Double, $2.50 to $5.00. Suites, $5.00 and up. Write for booklet containing map of downtown Buffalo.

HOTEL LENOX
140 NORTH ST. NEAR DELAWARE AVENUE, BUFFALO, N. Y., CLARENCE A. MINER, Pres.

YOU CAN'T SEE THE BONUS-LOAD

but it's there!

Refrigerated body built by Fitz Gibbon & Crisp, Inc., Trenton, N. J. Mounted on Fruehauf Semi-Trailer. Building of Alcoa Aluminum saved 2500 pounds for Bonus Load.

Inside this refrigerated body is 2500 pounds of Bonus Load. A ton and a quarter of pay-load is riding free . . . literally!

How can we truthfully say that any part of a load is riding free, when it consumes gas and oil and wears out tires? We say it truthfully because that Bonus Load is riding in place of ballast.

Needlessly heavy bodies make you haul ballast.

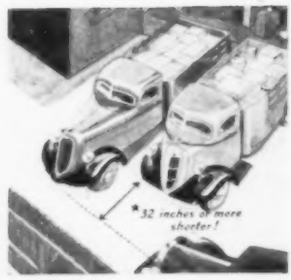
Bodies built of Alcoa Aluminum throw off the ballast. The load you haul, instead, is Bonus Load.

Bonus Load brings in income. Ballast is nothing but continual expense.

That is why operators such as Davidson Transfer and Storage Co. of Baltimore build of Alcoa Aluminum. They build for less ballast and more profits.

The weight-saving of Alcoa Aluminum is obtainable on any type of body. Any body builder can make you an Aluminum body at reasonable cost. All the shapes and forms he needs are available. The "know-how" resulting from our being "in on" thousands of other bodies is at his disposal and yours. May we help? ALUMINUM COMPANY OF AMERICA, 2161 Gulf Building, Pittsburgh, Penna.

ALCOA · ALUMINUM



32 to 40 inches shorter in overall length for greater flexibility in parking—more clearance when parked. The Studebaker Cab-Forward stays out of trouble . . . it requires less room to maneuver.

America's largest motor freight operator—Keeshin Motor Express Co., Inc., orders additional Studebaker Cab-Forward trucks on the excellent performance of a fleet previously purchased.

Crowded? These new "Cab-Forward" Studebaker trucks *really get around!*

FOR close quarters! For those hard-to-get-into driveways, and alleys, and parking spots! For any hauling work in city or country, where trucks have to turn and maneuver in cramped space, these new Studebaker Cab-Forward Trucks are the perfect answer!

Heavy-duty, genuine *truck* construction from big 6-cylinder engine to full-floating rear axle, distinguishes these new Cab-Forwards, as well as the Standard Series Studebakers—which are more compact than usual.

Save time and fuel

They save money as well as space. Think of the time and fuel wasted in maneuvering an ordinary truck in crowded places! Studebaker Cab-Forwards get in and out like an eel. Pioneer of the efficient Cab-Forward design in the low-priced field, these new Studebaker trucks are everywhere winning new sales honors for this veteran motor truck builder.

Economy in every field

Retail city delivery of merchandise of all types; inter-city hauling, farm work, road and construction service—the money-saving uses of these trucks are legion! They save up to 40 inches in overall length, over conventional trucks with same bodies, and have a much shorter turning radius.

Call your Studebaker truck dealer and let him show you the profit-possibilities of the great 1936 Studebaker Cab-Forward and Standard Series trucks.

Studebaker Trucks priced from

$565

upward, chassis at the factory

•

THE STUDEBAKER CORP.
Truck Division, South Bend, Ind.

"Your Cab-Forward trucks average 10 miles per gallon in traffic—handle perfectly. Short wheelbase is ideal for narrow streets," says W. C. Makinney, of the well-known Chicago Truck Leasing Co.

Quick to see the big advantages of Studebaker Cab-Forward models, Brooklyn Truck Renting Corp. placed this compact 2-unit van in service, handling paper products for an important client.

STUDEBAKER

FOREMOST IN TRANSPORT SINCE 1852